

How are entrepreneurial competence  
and dynamic capabilities of the  
Norwegian IT Start-ups related to  
performance?

*[An exploratory case study into the dynamic  
capabilities of the Norwegian IT Startups]*

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# **How are entrepreneurial competence and dynamic capabilities of the Norwegian IT Start-ups related to performance.**

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# Abstact

This master thesis was written in the fall of 2014 as the final part of my M.Sc. degree in Innovation and Entrepreneurship at University of Oslo in Oslo, Norway. The thesis is written for the specialization Innovation and Entrepreneurship.

**BACKGROUND:** Startups into the 2-3 years lifecycle seems to never get the funding they need and leadership is not able to mature their product or explore to another market.

**OBJECTIVE:** This thesis explore the process of self-assessment of the Norwegian IT Startups in pursue of performance by looking at the entrepreneurial competence and the dynamic capabilities of the firm. The lack of empirical evidence surrounding the way entrepreneurs are self-assessing their venture and entrepreneurial competence is the basis for this research.

**METHOD:** An exploratory qualitative case study on Norwegian IT startups companies. The study explored the relationship between entrepreneurial subjectivity, resource base view of the firm, the dynamic capabilities, the strategies of the firm the lean startup concept and the strategies of the firm in relationship with entrepreneurial competencies.

**RESULTS:** Eleven qualitative exploratory case study interviews were conducted; one of them was conducted with a Lean Startup consultant to gain a better understanding of theory and concepts of this method. Five Norwegian IT Startups firms were explored with open interviews, the interviews results were analyzed in conjunction with the firm financial data and market share indicators.

**CONCLUSION:** All interviewed entrepreneurs were showing a distinct tendency of rating themselves above the levels they set as “necessary for an entrepreneur” of all competencies. IT startups in Norway do indeed believe their companies have many dynamic capabilities and are of the lean type. I found some evidence that supports the case that there is a relation between dynamic capabilities and performance. However I found the study to be only partial supported for enhancement of the Startups performance. While this could reflect a lack of connection between the two concepts, it is also possible that entrepreneurs’ ratings are subjective.



“Knowledge has to be improved, challenged, and increased constantly, or it vanishes.”

-Peter Drucker

“A person who never made a mistake never tries anything new”

- Albert Einstein

“Amat victoria curam.”

- (Anonymous) Latin

☞



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# 1 Introduction

## 1.1 Problem Description

The IT startups sector it is known to be hazardous and unstable. Vision, strategy, resources and opportunity are playing a key role in the success of the startup firm. The Nordic region is known for its amazing Innovation. Countries like Sweden Finland and Denmark produced IT global companies like, Spotify, GAvagai, iZettle, MojangTrue Software, Rovio, Tradeshift, Everbread and Neo Technologies, however Norway remains one of the missing country in the list.

Regarding the IT sector Norway is being known to be the country where the first object oriented programming language has been developed LISP and for the web browser Opera started out in 1994 as a research project within Telenor, Norway's main telecom operator. Norway has a few sparks like the innovative Bipper, founded by Silje Vallestad, but when looking at look at the number of startups in coming from Norway to the global market are just a few.

Siri, the application in the iPhone that returns search results when you talk to it, could well have been built-in Norway. The creator of Siri, Day Kittlaus, is half-Norwegian and half American. He held management positions in Telenor. But he eventually chose to move the US to create Siri with Adam Cheyer and Tom Gruber in 2007. Siri was a famous startup, which Steve Jobs later bought it for 200m \$. Siri is presumed to be to be named after the famous Norwegian meteorologist and businesswoman Siri Kalvig. Siri did not end up being a Norwegian company, it became American. (Butcher 2012)

Indeed in Norway it is problematic with the initial funding but for the most startups, entrepreneurs do not really need a lot of money for the initial funding anyway. If entrepreneurs are willing to take some risk and do a bit of footwork eventually, they will manage the initial founding.

**Problem:** The problem is the growth phase 2-3 years into the lifecycle. Where there is no funding and there are just few leaders that can actually run successfully companies. This is currently where many companies die. They never get the funding and leadership is not able to mature their product or explore to another market.

In order to find answer to the problem above I formulate the following research question

**How Norwegian IT Startups are assessing their entrepreneurial competence in order to improve performance.**

**Assignment given: 28. August 2014**

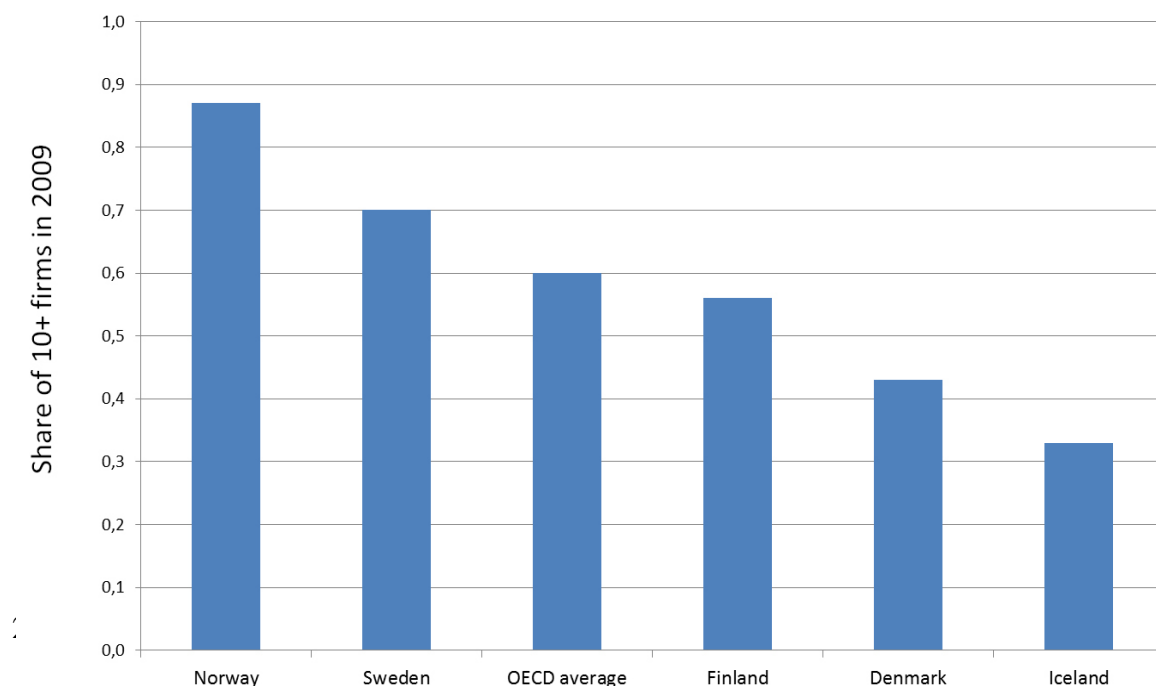
**Academic Supervisor: Prof. Tronn Skjerstad, PhD**

## 1.2 Background

### What do we know?

The Nordic Growth Entrepreneurship Review 2013 in an study of regional entrepreneurship, found that although Norway had a high number of fast-growing companies, almost half were either in the oil-and-gas sector, or in aquaculture. Many new ventures have great ideas or even prototypes with innovative technology in the IT industry, but it is not enough to succeed.

Figure 1. Source: NGER calculations based on National Statistic Offices in the Nordic countries and OECD.





Espen Solberg, NIFU stated *"Norway has long been considered a moderate performer in entrepreneurship. However, performance data in this report indicates that growth entrepreneurship in Norway is on the rise. The share of gazelles is higher in Norway than in the other Nordic countries, and Norway is second to Finland when it comes to employment growth in the gazelles. The strong performance should be seen in the light of a persistently high activity and structural change in the Norwegian economy. Access to finance is in general good in Norway. The government has established a number of funds for startup companies over the past few years. However, many grant schemes and funds are oriented towards rural areas while entrepreneurship activity is more concentrated around the urban areas. The framework data also indicates that it is fairly easy to start and close down a business in Norway. This is also reflected by Norway's persistently high firm birth rates. On the other hand, firm survival and further growth remains a challenge."* (Nordic Growth Entrepreneurship Review 2012).

According to Fredrik Syversen in a The Wall Street Journal article (TWSJ 2013), the director of industry development at the trade organization for the Norwegian ICT industry (IKT-Norge), the imbalance in the Norwegian market is harming the growth of Norwegian tech start-ups.

*"All funding is geared towards oil and gas," ; "As an investor you are looking for high returns; the profits from the North Sea are much more secure and will bring you back much more. For tech startups to compete with the success, we have in the oil and gas sectors is almost impossible."* (The Wall Street Journal 2013)

Jostein Svendsen, cofounder and chief executive officer (CEO) of WeVideo in an interview with Karamjit Singh *"points to the failure of Norwegian entrepreneurs to learn and listen to others who have been successful outside Norway as a characteristic flaw that stems from Norwegians being too proud, hence his advice for its entrepreneurs to learn to be humble."* (Karamjit S. 2014)

Maja Adriaensen the founder and the chief executive officer (CEO) of Startup Norway one of the most vibrant startup communities in Norway states on her LinkedIn page the reasons why she started Startup Norway *"Our company, Startup Norway, was started because we saw a lack of community and support for entrepreneurs in Norway. Inspired by living abroad in startup hubs, like Berlin, San Francisco and Boston, we have created initiatives we felt were*

*missing locally. By facilitating new projects that feeds the ecosystem with more entrepreneurs and startups, we are aiming to build a thriving startup scene in Norway and tie the startup community closer together.” “We are also providing guest-lectures at universities in entrepreneurship, business models, and customer development, and are attending events and seminars as speakers on request.” (Adriaensen M. 2014)*

Based on the arguments above in this thesis I will not follow companies that are trying to get government grants to found their startup. The amount of money is too little and the amount of work required to get those funds is too much. Looking at the costs/benefits those people are either naive or they don't have any intention to create a business.

Central to the entrepreneurship literature is the conventional wisdom that entrepreneurs and investors alike use experience as a vital clue for anticipating future performance—the level of financial success in new ventures.

The studies of competencies are related to performance. Entrepreneurial competencies are clearly related to managerial competencies as articulated in the works (Boyatzis 1982).

(McGregor & Tweed 1998; McGregor & Tweed 2002) postulate that the competencies of owner-managers in small businesses are *"individually specific"* and not *"organizationally-indexed"* as they are with big business. The implication of this idea is that in smaller companies, owners' competencies are the same as firms' competencies, thereby allows me to focus on individual entrepreneurs as the unit of analysis.

## **1.3 What is the case?**

At an early stage, the entrepreneurial team or the entrepreneur have the role of performance evaluators and their vision shapes venture performance. Deciding which key competencies of the new venture are important and which are going to be pursued in order to improve performance in a new startup is by definition a crucial aspect of being an entrepreneur.

The traditional model of entrepreneurship is sketched *“on economic thinking to describe how an individual or firm takes entrepreneurial action by exploring areas where the demand for a product or for a service exceeds supply”* (Casson 2003; Khilstrom & Laffont 1979) *“to discover an entrepreneurial opportunity, and assess whether it is worth exploiting.”* (Alvarez

& Barney 2013; Eckhardt & Shane 2003; Shane & Venkataraman 2000; Venkataraman 1997).

The entrepreneur spots an opportunity takes action by “*organizing and acquiring resources to establish an entity that will develop and deliver a product or service to exploit the identified opportunity, and in so doing, create returns*” (Fisher 2012). Alternative theories to the entrepreneurial action are effectuation (S. D. Sarasvathy 2001) and entrepreneurial bricolage (Baker & Nelson 2005). These theories are suggesting that under certain conditions, entrepreneurs take a different route when identifying and exploiting opportunities (Fisher 2012).

Emerging theoretical perspectives of entrepreneurship are suggesting that if entrepreneurs have certain characteristics, such a tendency to focus primarily on the resources they have and ignore market needs when discovering an opportunity (Baker & Nelson 2005; S. D. Sarasvathy 2001). They ignore long-run returns and instead focus primarily on what they are willing to lose (S. Sarasvathy 2001). They refuse to recognize the resource limitations dictated by the environment (Baker & Nelson 2005). They avoid long-range goals and plans (Sarasvathy & Dew 2011).

Through previous interviews, using the resource base theory and the entrepreneurial subjectivist theory, I found evidence that competencies are extremely important to technology startups ventures, and those entrepreneurs’ perceptions and personal knowledge shape the firm’s subjective productive opportunity set. This is in alignment with Kor et al.’s Resources, Capabilities and Entrepreneurial Perceptions (Kor et al. 2007).

## **1.4 Research objectives**

The goal of this master thesis with the given case, background and problem formulation, the purpose of this master thesis is to:

- Explore and analyze the Norwegian IT startup sector looking at the resources including the entrepreneurial competence of the firm and the dynamic capabilities of the start-up firm.

This broad goal was addressed by looking at how entrepreneurs of the IT startup in Norway assess their personal capabilities and the dynamic capabilities of the firm, and how these relate to company performance.

I hypothesize that dynamic capabilities will be strongly related to performance, as companies that have them at a higher level will be more likely to survive and prosper. Also I think that the entrepreneurs' experience, personal skills and abilities will also play a major role in the company success. More experienced and skilled entrepreneurs will have a better chance at properly managing the company, developing its dynamic capabilities and taking advantage of opportunities and the positive aspects of the business environment.

For this purpose the cases I choose show some variance regarding performance, that I will try and explain with reference to entrepreneurial and company factors. Two of the cases have good performance, one has mixed performance indicators and one has negative financial performance. At the same time I added a case (Company 2) that is currently looking for investors and has good potential but low financial capabilities in the present. This variation should allow me to test my hypothesis more thoroughly.

## **1.5 Delimitations**

This master thesis delimits its scope to primarily looking at start-up companies founded in Norway. I will also refer to the global situation whenever it is required. Additionally, part of this research will map the current Norwegian ecosystem by depicting the primary members who are part of it and the services they offer.

The scope of this research to study to find how the entrepreneur or the entrepreneurial team in Norwegian IT start-up companies are assessing their competencies and how previous work history and experience can be linked to firm performance.

Narrowing down the research topic to focus as much as possible on the Norwegian IT startup was tactical choice since the student has practical experience in this field and made it easier to collect required data. This research was limited to 17 weeks of work – which constrained what kind of data and how much data was collected – and the limited number of start-up companies. Additionally, there is limited research on IT startup competencies and performance indicators.

## **2 Theories**

### **2.1 Entrepreneurial subjectivism theory**

Contrasting traditional theory, the entrepreneurial subjectivism theory relies on the idea that the future is uncertain and unknowable. Thus, this theory would also take into consideration the way entrepreneurs learn from market processes (Mahoney & Michael 2005).

According to Schumpeter, a factor of entrepreneurial success is intuition, taking efficient actions, even though the situation at the moment of the decision could not be certain (Mahoney & Michael 2005, p. 11).

Thus, it is necessary and justified to investigate the knowledge process and knowing activities of the entrepreneur. An understanding is needed regarding the way entrepreneurs adapt and respond to changing environmental conditions.

In a subjectivist theory of entrepreneurship, therefore, knowledge is treated as subjective. Knowing is based on discovering, and different people can interpret differently what they discover. The complexity of the business environment ensures countless combinations of resources and each person will utilize them differently (Mahoney & Michael 2005).

#### **Entrepreneurial judgment**

By subjectivism, (Hayek 1979) meant on one hand, that individuals have different inclinations, knowledge, and expectations, and on the contrary, that explanations of individual and social action must start from the mental states of the individuals and must take into account the differences in mental states.

Subjectivism holds that individuals have different inclinations, knowledge, and expectations. It can be inferred that one cannot understand individual behavior without reference to subjective beliefs. Since preferences are unobservable, it is not possible to explain individuals' preferences apart from their actions. The subjectivism of knowledge suggests that information relevant to economic activity is inherently subjective. (Foss et al., 2006)

By subjectivism, (Foss et al. 2008) meant that the notion of research in social science, including management, must take account the facts that individuals holding different preferences, knowledge, and expectations. More specifically, the fact that the contents of the human mind, including decision-making, are not rigidly determined by external factors.

O'Driscoll and Rizzo state that: *"On the most general level, subjectivism refers to the presupposition that the contents of the human mind, and hence decision making, are not rigidly determined by external events. Subjectivism makes room for the creativity and autonomy of individual choice"* (O'Driscoll and Rizzo 1985: 1).

The entrepreneurial function has been described in various ways including innovation (F. Schumpeter 1934), judgment (Knight 1921) and alertness (Kirzner, 1973).

The entrepreneurial function however transcends occupational and structural concepts and can become manifest in a variety of contexts: large or small firms, old and new, individually or in a team and in a large variety of markets and occupational categories. (Alvarez and Barney, 2005).

The entrepreneur can be an owner, owner-manager, a manager, a team of managers even, who take actions upon going through the entrepreneurial discovery process (Grimm et al. 2006).

The concept of judgment is different not only from alertness, but also from boldness or imagination (Aldrich and Wiedenmayer 1993), leadership (Witt 1998), innovation (Ahuja & Lampert 2001) and other notions of entrepreneurship that appear in the literature. Judgment must be exercised for strategic decisions, for tactical decisions, and also for ongoing operations as well as for new ventures (Knight 1921). The market sorts out which entrepreneurial ideas are useful in the world of experience (Klein and Klein 2001).

The notion of 'judgment' is a necessary condition for entrepreneurship to happen (Sarasvathy & Dew 2011). Judgment applies to the process of entrepreneurs developing estimates of later events in which the relevant probabilities are unknown. In this regard, Knightian uncertainty is consistent with subjectivism of expectations (Littlechild 1986).

Since what I want to attain is how startups lead by entrepreneurs are assessing their competencies and the process of assessing involves the judgment of I consider the concept of

entrepreneurial judgment the fundamental concept of the decision-making process. Table 3 illustrates the various conceptualizations of judgment that have been offered in the literature.

Definitions: Entrepreneurial Judgment
(Langlois 2007) <i>“Judgment is the (largely tacit) ability to make, under conditions of structural uncertainty, decisions that turn out to be reasonable or successful ex post.”</i>
(Casson 2005a). <i>“Judgmental decision making involves an element of improvisation rather than exclusive reliance on routines. It makes use not only of publicly available information but also of private information available only to a few. The exercise of judgment involves the synthesis of all this information...”</i>  <i>“Superior judgment stems from privileged information (that is substantially correct)...”</i>
(Casson, M.C. 2005b). <i>“The key trait of entrepreneurship is...judgment in decision making. Judgment is a capacity for making a favorable decision when no obviously correct model or decision rule is available or when relevant data is unreliable or incomplete.”</i>  <i>“Cantillon’s entrepreneur needs judgment to speculate on future price movements, while Knight’s entrepreneur requires judgment because he deals in cases that are unprecedented and unique. Schumpeter’s entrepreneur needs judgment to deal with the novel situations connected with innovation.”</i>
(Casson and Wadeson 2006) <i>“Entrepreneurship studies the behavior of individuals who specialize in making choices that require intensive use of judgment—i.e. choices that involve unprecedented situations in which different people are likely to make different decisions.”</i> (Casson 1982).
(K. Foss et al. 2007; Kirsten Foss et al. 2007) <i>“Judgment refers primarily to business decision-making when the range of possible future outcomes, let alone the likelihood of individual outcomes, is generally unknown (what Knight terms uncertainty, rather than mere probabilistic risk).”</i>
(Boudreaux & Holcombe 1989) <i>“Entrepreneurial judgment is the real-world substitute for the hypothetical perfect foresight exercised by producers in static equilibrium models...”</i>

<i>Market prices provide information only if markets already exist... New goods can only be produced on the basis of entrepreneurial judgment.”</i>
<i>(J. A. Schumpeter 1934) cited in (Langlois 2007) “Entrepreneurship depends on intuition, the capacity of seeing things in a way which afterwards proves to be true, even though it cannot be established at the moment, and of grasping the essential fact, discarding the unessential, even though one can give no account of the principles by which this is done.”</i>
<i>(Loasby 2011) “Profit, firms, and entrepreneurship, Knight argued, all depended on uncertainty, defined as the absence of proper procedures for dealing with a range of possibilities. We may add to this the absence of proper procedures for defining the range of possibilities, so eloquently emphasized by George Shackle.”</i>

Table 1. Definitions: Entrepreneurial Judgment identified in the literature by (Sarasvathy & Dew 2011)

Entrepreneurial judgment is a form of expertise- i.e. *“teachable and learnable elements with an internally consistent logic that we call effectual logic”* (S. D. Sarasvathy 2001; Sarasvathy & Dew 2008; Dew et al. 2009).

Leigh L. Thompson in her book *“Making the Team: A Guide for Managers”* describes the journey to become an expert as so *“To reach the level of expert is altogether more demanding. A person must have already reached a level of competence and then must work in the particular knowledge area for many years. During this time the developing expert will meet and solve problems, he or she will make mistakes, and those mistakes will form the backbone of that person’s expertise.”* (Thompson 2014)

I will use (Casson & Wadeson 2007) definition on entrepreneurial judgment levels as a tactical choice because this research was limited to 17 weeks of work – which constrained how much data was collected and what kind of data.

*“Overall, an excellent entrepreneur, with good judgment, will tend to select good projects, whilst a bad entrepreneur, with bad judgment, will select bad projects. Of course, given the prohibitive cost of collecting full information, there will always be residual uncertainty; good judgment shortens the odds, but does not guarantee success. The new projects promoted by a good entrepreneur will tend to be true opportunities, whilst the projects promoted by a bad*



*entrepreneur will be false opportunities—i.e. projects that appear promising to people who use over-simplified theories and poor information. Investing in false opportunities represents a waste of resources because the opportunities do not belong to the optimal project portfolio. The key to entrepreneurial success is to possess sufficient judgment to recognize genuine opportunities and screen out false ones.” (Casson & Wadeson 2007)*

## **2.2 Resources base view theory**

The task of attracting resources into a new venture is perhaps the greatest challenge of the entrepreneurs as the lack of both reputation and a track record creates a heightened perception of risk by potential resource providers (Greene et al. 2001; Carter et al. 2003).

Many researchers are indicating that the work history and experiences of the entrepreneur are vital for entrepreneurial success (Bruno & Tyebjee 1985; Sandberg & Hofer 1987; Starr & Macmillan 1990; Hisrich and Peters 2002). The resource-based view on firm performance is endorsed by these studies; entrepreneurial resources (for instance human and financial capital or the capability to easily acquire them) determine entrepreneurial successes.

A start-up cannot survive only on the entrepreneur's human and financial capital, other resources must also be present to produce success (Teece 1993; Deeds et al. 1999). Therefore, the entrepreneur's networks (whether personal and relation-based networks or strategic alliances) are vital for acquiring the necessary complementary resources and capabilities (Weijan Shan et al. 1993; Deeds & Hill 1996; Bantham et al. 2003; Johnson & Sohi 2003).

To be successful at executing the decision requires that the firm possess the right fit of resources (Chandler & Hanks 1994). Although many different types of resources enable firms to efficiently and effectively pursue growth objectives through their quality (Chandler & Hanks 1994), strength (Brush & Chaganti 1999), and the competencies they generate for the firm (Chandler & Hanks, 1994a, 1994b), the two resources examined most often and found to be most clearly related to new venture growth are the financial (Bamford et al. 2004; Cooper 1993; Cooper et al. 1994; Gimeno et al. 1997; Lee et al. 2001) and human capital (Birley 1987; Cooper et al. 1994) resources the firms employ.

*Human capital.* Resource-based capabilities of firm employees contribute positively to venture growth by helping the entrepreneurs execute their objectives (Chandler & Hanks

1994). However, human resource needs change as the firm progresses from start-up to an established mature firm (Thakur 1999). According to Cardon (2003), a start-up may require more specific expertise and skilled workers than a mature firm. As the firm enters its expansion stage, it may be able to use lower-skilled workers to meet production demands. In order for a start-up to survive the expansion stage Cardon argues, it is necessary for the entrepreneur to staff for it ahead of time. (Cardon 2003)

As (Birley 1987) reported, the growth in certain classes of employees is likely to change with the needs of the firms. The rate at which each of these classes of employees increases may also inform the field a great deal about strategic directions in which the firm is heading and the extent to which the venture is staffed to exploit new strategic opportunities.

*Financial capital.* The financial capital a firm holds is known to influence the sales and employment growth performance of new firms (Cooper 1993; Lee et al. 2001). A higher level of financial capitalization is important because it buys entrepreneurs time to successfully execute strategic objectives, enables entrepreneurs to either undertake more ambitious strategies or change their course of action, and simply empowers the entrepreneurs to meet the financing demands that are required to sustain the growth being realized (Cooper et al. 1994). Financial capital provides the flexibility needed to support the firm's strategic endeavors (Zahra & Bogner 2000), which has led some to investigate the options entrepreneurs have for accumulating financial capital. For example, (Madsen et al. 2003) Bollingtoft, Ulhøi, Madsen and Neergaard in (Madsen et al. 2003) found that for entrepreneurs with less innovative technologies, financial capital often comes from the entrepreneur's own resources. For more innovative technologies, financial capital is often sourced from external sources of capital, such as banks or venture capitalists. Although the initial financing needed to start a new venture may come from the entrepreneur's private funds or from monies borrowed from relatives (N. Berger & F. Udell 1998), the amount of financing required to obtain growth is often beyond that which can be garnered from one's own or network of personal resources. Some ventures have been able to accelerate their sales and employment growth by use of allowances from the government (Dahlqvist et al. 2000). For those for which governmental support is not an option, the entrepreneur's ability to obtain capital from sources like banks or venture capitalists takes on great importance for the growing business. Not surprisingly, connections to sources of external funding such as banks

and venture capitalists are significant predictors of new venture sales growth e.g. (Lee et al. 2001).

*Outside resources.* A review of the literature reflects a strong consensus that a venture's connections to outsider competencies are beneficial for the growth of the firm. (Cooper 1985), for example, found that growth-oriented ventures tended to be birthed out of other organizations and also to be engaging in activities that were related to those of the "incubator" organization. (Chrisman et al. 1998; Chrisman et al. 2005) found that having used the assistance of counselors from a Small Business Development Center significantly influenced the sales and employment growth to a point, whereas too much assistance proved a hindrance for sustaining high levels of growth.

Since start-ups are often small in size at first and tend to fail at a very high rate as compared to well-established companies, cooperation with these entities is often conditioned on the probability of survive. (Laumann & Marsden 1982) believes that balanced reciprocity would persuade cooperative firms to provide resources to a start-up as long as the start-up has a high probability of succeeding.

## **2.3 Dynamic capabilities**

Dynamic capabilities are widely considered to include those processes that enable organizations to maintain superior performance over time.

Dynamic capabilities are higher-level competences that define the firm's ability to integrate, develop, and reconfigure internal and external resources to address, and possibly shape, rapidly changing business environments (Teece 1993; Teece & Pisano 1994; Teece et al. 1997; Teece 2012). They determine the speed at which the firm's particular resources can be adjusted and readjusted to match the demands and opportunities of the business environment in order to generate sustained positive returns.

Dynamic capabilities are 'strategic' and different from ordinary skills. Firms can maintain and increase competitive advantage by adding dynamic capabilities on top of ordinary skills. In this case, the firm's ordinary capabilities enable it to perform its usual activities efficiently. However, dynamic capabilities, especially when combined with a good strategy (Lovallo et al. 2007; Rumelt 2011), allow the enterprise to position itself for making products and

targeting markets to address the consumer needs and the competitive opportunities of the future. Table 3 describes from the extensive literature the dimensions of dynamic capabilities.

Dimensions		Definition	Selected references
<b><i>Regenerative capabilities</i></b>	Reconfiguration	The capability to continuously and purposefully reconfigure the existing resource base, enabling the firm to transform and exploit its existing knowledge.	(Bowman & Ambrosini 2003)(Eisenhardt & Martin 2000),(Teece & Pisano 1994), (Teece et al. 1997), (Zahra & George 2002)
	Leveraging	The capability to utilize and deploy an existing resource in new a situation, allowing the firm to replicate an operational capability in a new market.	(Bowman & Ambrosini 2003), (Eisenhardt & Martin 2000),(Pavlou & El Sawy 2006), (Teece et al. 1997)
	Learning	The capability that allows the firm to adopt, acquire and create new capabilities through the learning processes of the organization.	(Bowman & Ambrosini 2003), (Romme et al. 2010), (Teece & Pisano 1994) (Zollo & Winter 2002), (Zott 2003)
<b><i>Renewing capabilities</i></b>	Sensing and seizing	The capability to position oneself favorably in an environment and to explore new opportunities.	(Danneels 2002), (Pandza & Thorpe 2009), (Teece 2007), (Teece et al. 1997)
	Knowledge Creation	The capability to continuously create and absorb new knowledge, and to develop new products or processes, also known as absorptive capacity.	(Eisenhardt & Martin 2000), (Danneels 2002), (Henderson & Cockburn 1994; Henderson & Cockburn 2003),(McKelvie & Davidsson 2009),(Teece & Pisano 1994),(Verona & Ravasi 2003), (Zahra & George 2002)
	Knowledge Integration	The capability to acquire and integrate new knowledge through	(Ambrosini et al. 2009), (Blyler & Coff 2003), (Eisenhardt & Martin 2000), (Teece & Pisano 1994),

external sources such as networks, also referring to the utilization of social capital.	(Teece et al. 1997), (Verona & Ravasi 2003), (Zollo & Winter 2002)
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Table 2. Dimensions of dynamic capability identified in the literature by (Makkonen et al. 2014)

A continuous flow of dynamic capabilities enables organizations to react to new environmental conditions with new strategic opportunities (López 2005). Dynamic capabilities can exist in several functional areas of firms (Morgan et al. 2009), but those in marketing and R&D tend to be key; they shape markets, and markets shape these capabilities, so the firm and its markets evolve together (Augier & Teece 2008; Augier & Teece 2009). Several studies have verified the influence of these key capabilities on performance and their role in explaining differences in firms' performance outcomes (Jayachandran et al. 2004; Morgan et al. 2009; Vorhies & Morgan 2005; Menguc et al. 2013). Both marketing and R&D capabilities are important in developing and commercializing new technologies and innovations.

(Teece et al. 1997) claim that dynamic capabilities are more important to the firm than usual resources, since they build new forms of routines, while usual resources only replicate existing routines. The name "*dynamic*" refers to the evolving environments, which require the firm to adapt its capabilities due to "*time, competition and change eroding their value*" (Rumelt 1984, p. 557). (Prahalad & Hamel 1990, p. 82) regard such capabilities as core competencies.

Strong dynamic capabilities are crucial to success, especially when an innovating firm needs to explore a market or a new product category. Drawing on the entrepreneurship aspect, (Zahra et al. 2006) are characterizing dynamic capabilities as the abilities to adjust, adapt, modify and reshape the firm's resources and routines; in the way envisioned and regarded appropriate by its principal decision-maker(s), the entrepreneur or the entrepreneurial team.

## 2.4 Strategies

Numerous studies on new venture growth have considered the importance of a venture's strategy for its growth performance. The results of such studies have often yielded mixed

results concerning the strategies that lead to growth for new venture firms. For example, (Siegel et al. 1993) found that ventures with focused strategies, operationalized as more revenue being generated by a single product, had higher sales growth rates. (Robert Baum et al. 2001), on the other hand, found that low-cost and focus strategies correlated negatively with their aggregate measure of venture sales and employment growth, whereas differentiation through high quality and innovation exhibited positive relationships with venture sales, employment, and profit growth.

However, (Siegel et al. 1993) resorted to a 3-year measure of sales growth only, whereas (Robert Baum et al. 2001) used an annual measure of sales and employment growth combined. In the short term, focus strategies may require employees with specialized competencies that may be difficult to acquire short term. A negative relationship with employment growth might result. Too few studies, however, have considered the short-term versus potential long-term effects of venture strategies.

In a prior study, (Dowling et al. 1994; Lechner & Dowling 2003) found that the experiences of the top management moderated the relationship between cooperative arrangements and venture sales growth, with technical experience being crucial to observing significant sales growth from technical alliances and marketing experience being crucial to observing significant sales growth from marketing alliances. Similarly, (Lee et al. 2001) found that technological capabilities were important for helping new ventures achieve the highest levels of sales volume through their network relationships. Collectively, these studies corroborate the contingent relationship found by (Chandler & Hanks 1994) whereby the strategy-growth relationship is contingent on the resources the venture has to support the strategy being executed.

The influence of a venture's strategy on sales, employment, and market share growth may also depend on the scope of the product line the venture offers and the order of entry in which the venture enters the market. For example, (Sandberg & Hofer 1987) found that broad, differentiation strategies appear to be marginally more effective than focused strategies when the venture is an early entrant; otherwise, focused strategies appear more effective for late entrants.

## **2.4.1 Planning and firm performance**

The literature in strategic management is dominated by two different paradigms: a rational one with a focus on formal models of strategic planning and an incremental one, focusing on the emergent characteristic of strategies. (Lindblom 1959); (Andrews 1971); (Mintzberg 1978; Mintzberg 1994b)

In regard to the formal planning model, its usefulness has been debated greatly. On one hand, it would allow individuals to improve their decision-making by noticing missing information, use thought experiments and to examine assumptions in a cost-free environment (Boyd 1991).

Planning plays an important role in the companies attempt to adapt to the unforeseen future, to match supply and demand of resources efficiently (Armstrong 1982), to estimate the timing of supply, and to minimize bottlenecks over the value chain (Bracker 1988; Bracker et al. 1988). Planning additionally allows the pursuit of goals and objectives in a systematic way and thus allows the development of concrete actions (Locke et al. 1981; Locke et al. 1988; Robert Baum et al. 2001; Locke & Latham 2006). However, the promoters of the incremental paradigm argue that formal planning can actually actually reduce the company capacity to respond to environmental change, as the decision process can become lengthy across multiple levels of organizations (Ramanujam et al. 1986; Gilmore & Camillus 1996; Camillus 1997; Camillus 2008).

These authors claim that formal planning is hinders flexible, adaptive learning processes that in the case of uncertain business environments are required for success (Mintzberg 1978). Formal planning may create the illusion of control and can stifle creativity because it channels attention and behavior in organizations (Mintzberg 1994a; Mintzberg 1994b).

#### **2.4.2 Planning and firm performance: findings from entrepreneurship research**

Many of the theoretical arguments mentioned earlier are referred to developing firms, where the planning processes and the firm performance are differ in major ways between the developing firms and the established firms (McGrath & MacMillan 1995).

Researchers suggest particularly that aspiring entrepreneurs are facing with a higher level of unpredictability than managers in larger, more established firms (Hambrick & Crozier 1985).

Planning in developing firms is characterized by a high ratio of hypothesis to knowledge, historical trends, and other information that diminish ambiguity.

*"Much of the decision making of aspiring entrepreneurs is challenged by missing or inaccurate information and ambiguous information signals. Moreover, as founding environments tend to be highly dynamic, decision making is often complicated by rapid changes in demand, technology, and competition"* (Gruber 2007)

Strategy scholars like (Bhidé 1999) and (Bird 1988) stress that planning can limit adaptability of new firms when entering uncertain markets.

Other scholars consider business planning valuable despite the high levels of unpredictability. new venture creation. Precisely, planning is found to be more effective in developing firms, where the time span between planning and feedback is a lot less than in established firms (Locke et al. 1981; Locke & Latham 2006; Shane & Delmar 2004).

The development of plans is recognized to be *"useful for complex and fuzzy tasks such as new firm creation."* (Gruber 2007). It helps entrepreneurs to analyse systematically the relationship between intention, action, and performance (Matthews & Scott 1986) and it helps entrepreneurs to create specific milestones plans in order to achieve their vision (Block & MacMillan 1985).

Empirical evidence which could support opposing arguments are insufficient.

Three articles (Delmar & Shane 2003; Shane & Delmar 2004; Gruber 2007) share the same positive relationship between planning and new firm performance. Research made by (Brüderl et al. 1996) also shows that planning has beneficial effects, whereas findings by (Allinson et al. 2000) insinuate that intuitive approaches are more effective.

## **2.5 Entrepreneurial Competencies**

### **2.5.1 Entrepreneurial competencies from a process perspective**

The studies of individual competencies are related to performance. Entrepreneurial competencies are related to managerial competencies as articulated in the works of (Boyatzis 1982).



According to (Boam & Sparrow 1992), this rising importance results from two fundamental issues: first, large-scale change programs have failed to change organizations, as they fail to deliver the necessary changes in individual behavior. To sustain a change in behavior, people have to create a demand for new behavior.

Second, the growing link between business performance and employee skills has called for the need to improve management capability in order to sustain business performance. In other words, this approach is a response to the need for long-lasting individual characteristics leading to success, other than simply skills and abilities, in facing increasing competition.

Therefore, the use of the competency approach matches the long-term orientation characteristic of competitiveness. The competency approach has become an increasingly prevalent approach of studying entrepreneurial characteristics. While competency can be studied from its inputs (antecedents to competencies), process (task or behavior leading to competencies), or outcomes (achieving standards of competence in functional areas) (Mole et al. 1993), I emphasize with the process or behavioral approach to studying entrepreneurial competencies in order to be in line with the process dimension of the competitiveness condition. This approach assumes that the simple possession of competencies does not make an entrepreneur competent.

Rather, competencies can only be demonstrated by a person's behavior and actions, which correspond to the dynamism characteristic of competitiveness. In terms of a casual relationship, behavior is closer to performance than other entrepreneurial characteristics, such as intentions, motivations or personality traits, (Herron & Robinson 1993); (Gartner and Starr, 1993). According to (Bird 1995), competencies are regarded as behavioral and observable but only partly intra-psycho characteristics of an entrepreneur.

Competencies are changeable and learnable, allowing intervention in terms of the selection and teaching of entrepreneurship. These natures allow entrepreneurial competencies to indicate the controllability characteristic of competitiveness. In sum, the characteristics of entrepreneurial competencies can be investigated from a process perspective, reflecting the actual behavior of the entrepreneur. They fit the long-term orientated, dynamic, and controllable natures of SME competitiveness. They can be considered as higher-level characteristics, representing the capacity of the entrepreneur to perform a job role successfully (Choe et al. 2013) (Lau et al. 1999) and encompassing personality traits, skills and

knowledge, which are in turn influenced by the entrepreneurs' experience, training, education, family background and other demographic variables (Bird 1995); (Herron & Robinson 1993).

After reviewing the literature, in my research, I will use further (Man et al. 2002) system to categorize competencies. In their paper "The competitiveness of small and medium enterprises. A conceptualization with focus on entrepreneurial competencies", (Man et al. 2002) reviewed the previous literature and consequently divided competencies in six competency areas. Through this system, competencies were identified into relevant activities or behavior in an SME context.

In my research in finding how entrepreneurial competencies are influencing performance through dynamic capabilities, I will consequently use the six-competency areas table to categorize competencies as shown in Table 3.

Competency area	Behavioral focus	Literature sources											
		1	2	3	4	5	6	7	8	9	10	11	12
Opportunity competencies	Competencies related to recognizing and developing market opportunities through various means		*	*		*		*			*	*	*
Relationship competencies	Competencies related to person-to-person or individual-to-group-based interactions, e.g., building a context of cooperation and trust, using contacts and connections, persuasive ability, communication and interpersonal skill		*		*	*	*	*		*	*	*	
Conceptual competencies complex	Competencies related to different conceptual abilities, which are reflected in the behaviors of the entrepreneur, e.g., decision skills, absorbing and understanding information and risk-taking, and innovativeness		*	*	*	*	*	*	*	*	*	*	*
Organizing competencies internal	Competencies related to the organization of different and external human, physical, financial and technological resources, including team-building, leading employees, training, and controlling	*	*	*		*	*	*	*	*	*	*	*
Strategic competencies implementing	Competencies related to setting, evaluating and the strategies of the firm	*	*		*		*	*		*	*	*	*
Commitment competencies with	Competencies that drive the entrepreneur to move ahead the business		*			*	*		*	*	*	*	

Literature sources: (1). (Adam & Chell 1993); (2) (Bartlett & Ghoshal 1997); (3) (Baum 1994); (4) (Bird 1995); (5) (Chandler & Jansen 1992); (6) (Durkan et al. 1993); (7) (Gasse 1997); (8) (Hunt 1998); (9) (Lau et al. 1999); (10) (McClelland 1987); (11) (Mitton 1989); (12) (Snell & Lau 1994)

Table 3. The six competency areas identified in the literature by (Man et al. 2002)

Entrepreneurial competencies are a constellation, or group of characteristics associated with the successful development of new business (Colombo & Grilli 2005). These competencies are described as the “underlying characteristics of a person, which result in affective action and/or superior performance in a job” (Colombo & Grilli 2005). For example innovation has been defined as a type of competency – it is “a skill, not a gift” which can be improved over time with increased knowledge and the development of core skill sets “*M. 20 qualities of an innovator*” (Ditkoff 2013). Competencies can range from personality traits and individual motivations to specific knowledge and skills (Mitchelmore & Rowley 2010). As reviewed previously, traits and motivations can also spur the development of entrepreneurial competencies. For example, traits can lead to the development of workplace skills necessary entrepreneurial success.

Regarding the entrepreneurs’ competencies specifically, there is a range of definitions in the literature that, similarly to the managerial competencies, suggest the broad general nature of the term, comprising various aspects at a lower level of abstraction. (Mitchelmore & Rowley 2010) point that there is a consensus on the discussion of, presumably, the individuals who start and transform their businesses to possess given entrepreneurial competencies. The authors state that these entrepreneurs’ competencies can be described as a certain group of competencies that is relevant to the successful performance of entrepreneurship.

As was earlier noted that managers’ competencies relate to their success, here the same comment is made for entrepreneurs as well.

This aspect is very important for my study, as it shows that having certain competencies leads to success for both managers and entrepreneurs. Interestingly though, entrepreneurs cannot be necessarily classified as competent only due to the fact that they possess some competencies, however, these competencies have to be demonstrated through the individual’s actions and behaviors (Man et al. 2002). In their study, the researchers summarize that the entrepreneurial competencies can be defined as higher-level characteristics which represent the total entrepreneur’s ability to successfully perform a job role, and as comprising of knowledge, skills and personality traits which are influenced in turn by the education, training, family background, experience, and other demographic aspects of the entrepreneurs. It is interesting to notice that for entrepreneurs the factors that influence their competencies are listed very clearly but for managers they were merely mentioned to be something that is learned on the job.

Moreover, referring to (Bird 1995); (Mitchelmore & Rowley 2010) present the entrepreneurs' competencies as being the "underlying characteristics such as specific knowledge, motives, traits, self images, social roles and skills which result in venture birth, survival and/or growth" (p.96). Nevertheless, when confirming and summarizing the broad perspectives with which the academics associate and approach the entrepreneurial competencies, based on (Man & Lau 2005). Mitchelmore & Rowley (2010) define them as comprising the "*components that are deeply rooted in a person's background (traits, personality, attitudes, social role and self-image) as well as those that can be acquired at work or through training and education (skills, knowledge and experience)*" (Mitchelmore & Rowley 2010, p.104). Abraham et al. (2001) also says how using the term competency overall is advantageous in a way because it actually includes terms like characteristics, behaviors, and traits (Abraham et al. 2001). Finally, Mitchelmore & Rowley (2010) conclude that often competencies are not well defined, or not at all particularly in certain studies in the competencies literature, and importantly, that term like skills, competencies, expertise and knowledge are frequently used interchangeably, sometimes not with enough attention to their real meaning. (Mitchelmore & Rowley 2010)

## 2.5.2 Entrepreneurial Competence

The Dictionary (i.e. the OED) defines competence as the ability of implementation, particularly of something physical, mental or financial, or as a legal power to achieve something. It can be a natural or an acquired skill or talent. Notwithstanding such a relatively clear definition (Lans et al. 2008) noted that in practice the construct of competence is met with a great deal of confusion. Due to the differences between their components – achievements, tasks, capabilities, and personal characteristics – competences are seen as a 'fuzzy' concept (Delamare Le Deist & Winterton 2005).

As identified by (Lans et al. 2008) competences are a blend of knowledge, skills, and attitudes. They can also be defined as broader personal characteristics required for superior behavior, but also as an outcome of a fitting application of knowledge (Brown 1993). Dermol (2013) noted that Le-Brasseur et al. (2002) when are considering competences "*they emphasizing on behavior and performance.*" They understand a competency as "*an effective performance of a task or activity in a work context, due to the underlying attributes of the individual: motives, skills, traits, self-image, social role, or and experience knowledge.*"

Dermol (2013). Obviously, competences can be defined as professional standards as well. They can be therefore identified by conducting a job analysis within different work or social contexts. Moreover, (Delamare Le Deist & Winterton 2005) also recognize so-called meta-competences. They define them as a capacity to manage uncertainty, learning, and reflection and are usually related to 'learning to learn' ability. As a character of meta-competence, Robert M. Gagne cited in book review by (Richey 2000) recognizes so-called cognitive strategies. He defines them as intrinsically organized skills directing personal behavior at learning, memorizing and reflecting. They are linked to self-management and self-control of learning and thinking, and not to the setting in which the individual operates. To acquire them, it takes much practice and opportunities to reflect.

Competences are closely linked to work contexts (Sandberg 2000). In some cases they can be viewed as tacit knowledge (Polanyi 1966), that individuals automatically have at their disposal when they require it, but they are usually not conscious of having such knowledge (Dermol 2010); (Dermol & Cater 2013). (Cope & Watts 2000) recognize the developmental perspective of competence. When the competences are applied in practice, even unconsciously, experiential learning takes place that improves these competences – e. g. By reflection on critical incidents, by testing the learning or by observation.

I can assume that entrepreneurial competences are not fully granted to individuals at birth, but are built through the processes of education, practice, and experience (Lans et al. 2008).

Personal past is also very closely connected to the concept of the competences (Dermol 2010). It is the outcome of experiential learning, which is considered by many scholars to be the most prominent method of adult learning (Jarvis et al. 1998a). It takes place everywhere and at any time and covers the acquisition of all varieties of knowledge, skills and experience (Omerzel et al. 2008; Omerzel & Antoncic 2008). Experiences in the spirit of trial and error processes, complemented with observation of other people are the foundation for learning. At the same time, they are also an important learning stimulus (Jarvis et al. 1998a; Jarvis et al. 1998b).

Boyd & Vozikis (1994), are highlighting in their findings usually the parents of entrepreneurs are self-employed, which appears to influence the future entrepreneurs' inspirations and desires for training and education (Boyd & Vozikis 1994).

### 2.5.3 The development of entrepreneurial competencies

Competence/y/ies is a set of terms with widespread use in the human resource development domain, where they are used in the assessment of people's job performance (Moore et al. 2002; Hessami & Moore 2007). (Sánchez 2011) defines competencies as so “*a cluster of related knowledge, traits, attitudes and skills that affect a major part of one's job; that correlate with performance on the job; that can be measured against well-accepted standards; and that can be improved via training and development*” (Sánchez 2011, p.241). These terms also have regional variations in interpretation, with differences in emphasis between United Kingdom and United States (Mitchelmore & Rowley 2010). To alleviate the confusion, (Moore et al. 2002) have proposed competence to relate to an area of work, competency to relate to the behaviors supporting that area of work, and competencies to relate to the attributes underpinning these behaviors. They also relate behavior to both ability and willingness to act, leaning on (Burgoyne 1989) who defines competency as “*the willingness and ability to perform a task*” (p. 57).

### 2.5.4 Entrepreneurial competencies

Combining the two terms entrepreneurial and competencies, the result is a concept that varies considerably in its meaning and interpretation. However, scholars have found value in using the notion of entrepreneurial competencies. Man et al. (2002) consider entrepreneurial competencies as a “*higher-level property that reflects the total ability of the entrepreneur to perform a job role successfully*” (Man et al. 2002, p.124). (Johannisson 1991; Johannisson 2011) has proposed a framework consisting of five levels of learning; (1) Know-what, or knowledge; (2) Know-when, or insight; (3) Know-who, or social skills; (4) Know-how, or skills; (5) Know-why, or attitudes, values and motives. Based on this framework he calls for more contextual approaches in entrepreneurship teaching, involving qualified experience and social networks through action learning.

For the purpose of this thesis, knowledge, skills and attitudes (KSA) based framework for entrepreneurial competencies has been developed, see Table 2. This framework is a developed version of a framework for learning outcomes in entrepreneurship education proposed by (Fisher et al. 2008), which in turn leans on a general training evaluation framework proposed by (Kraiger et al. 1993) consisting of cognitive, skill-based and affective learning outcomes. Such a KSA approach is in line with the tripartite division of mind outlined earlier in Table 4,

and is also in line with the definition of experiential learning outlined earlier (Hoover & Whitehead 1975, p.25).

Main theme	Sub themes
<b>Knowledge</b>	<ul style="list-style-type: none"> <li>• <b>Mental models</b> (Kraiger et al. 1993)</li> <li>• <b>Declarative knowledge</b> (Kraiger et al. 1993)</li> <li>• <b>Self-insight</b> (Kraiger et al. 1993)</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>• <b>Marketing skills</b> (Fisher et al. 2008)</li> <li>• <b>Opportunity skills</b> (Fisher et al. 2008)</li> <li>• <b>Resource skills</b> (Fisher et al. 2008)</li> <li>• <b>Interpersonal skills</b> (Fisher et al. 2008)</li> <li>• <b>Learning skills</b> (Fisher et al. 2008)</li> <li>• <b>Strategic skills</b> (Fisher et al. 2008)</li> </ul>
<b>Attitudes</b>	<ul style="list-style-type: none"> <li>• <b>Entrepreneurial passion</b> (Fisher et al. 2008)</li> <li>• <b>Self-efficacy</b> (Fisher et al. 2008)</li> <li>• <b>Entrepreneurial identity</b> (Krueger, 2005), (Krueger 2007)</li> <li>• <b>Proactiveness</b> (Sánchez 2011, Murnieks 2007)</li> <li>• <b>Uncertainty / ambiguity tolerance</b> (Sánchez 2011, Murnieks 2007)</li> <li>• <b>Innovativeness</b> (Krueger 2005, Murnieks 2007)</li> <li>• <b>Perseverance</b> (Markman et al. 2005); (Cotton 1991)</li> </ul>

Table 4. Entrepreneurial competencies framework by (Lackéus 2013)



### 2.5.5 Measuring entrepreneurial competencies

A specific aspect of a competencies approach is its emphasis on measurability. Some definitions of competencies incorporate measurability; others do not (Moore et al. 2002). Measuring competencies is problematical, requiring multiple methods and approaches that to a degree are subjective. (Bird 1995) lists 17 potential ways for assessing entrepreneurial competencies, including diaries, observation, critical event interviewing, archival data; role set ratings, cases; job shadowing and think-aloud protocols. In the domain of entrepreneurial education an promoted approach to assess the degree of competencies acquired in an entrepreneurship program is the use of pseudo-randomized experiments, and with pre- and post-measurements on treatment and usually also control groups (Martin et al. 2013; Lackéus 2013). The measurement means are often survey-based and attempt to capture the levels of entrepreneurial knowledge, skills and attitudes before and after an educational treatment.

This kind of approach has however been heavily criticized by scholars in education. (Biesta 2007; Olson 2004) highlited also by (Lackéus 2013) in his Conference paper at 22:nd Nordic Academy of Management conference in Reykjavik. (Olson 2004) claims that *“the more simple cause-effect relations so important to the physical and biological sciences are largely inappropriate to the human sciences, which trade on the beliefs, hopes, and reasons of intentional beings.”* (p. 25). Biesta (2007) states that *“education cannot be understood as an intervention or treatment because of the non-causal and normative nature of educational practice and because of the fact that the means and ends in education are internally related.”* (Biesta 2007, p.20).

This thesis represents an approach to outcome assessment that differs from these traditional randomized experiment approach, in that it explores what entrepreneurial competency development can be tied to emotionally loaded experiences caused by an action based entrepreneurial education program. Such an approach can lead to measuring the prevalence of emotional events as a valid proxy for developed entrepreneurial competencies, instead of trying to measure the competencies themselves, which has shown to be both subjective and questionable.

## 2.6 Definitions

### Start-ups

In the specialist literature, start-ups, often also called new ventures or newly founded technology-based firms (NTBFs), are approached through different perspectives. By definition, a new venture means that has been recently established as a new firm.

New firms are faced with a more difficult environment than established organizations and as such, their failure rate is high (Bruno & Cooper 1982), cited in (Lumpkin et al. 2006). (Sine et al. 2006) found that new ventures are, by their nature, extremely flexible and in synch with their environment. This flexibility allows new ventures to develop a strong Entrepreneurial Orientation (EO), “*the propensity of organizations to act entrepreneurially*” (Lumpkin et al. 2006), which is found to have positive relationship with the performance of new ventures in high tech industries (Covin et al. 2005), cited in (Stam & Elfring 2008).

While flexibility is advantageous, the other side of this coin is that new ventures lack the benefits associated with organizational structure such as decreased coordination costs and increased organizational efficiency (Sine et al. 2006).

First and most commonly, start-ups are seen as merely the first stage(s) in a company development process. According to this, every company is at first a start-up company until it grows and becomes a large, complex organization.

(Luger & Koo 2005) are formulating an ambiguous definition to start-ups, which can be applied to some extent to all articles we reviewed. They describe a start-up as something that is both new “*it did not exist before a given time period*”; active “*it starts hiring at least one paid employee during the given time period*” and independent “*which is neither a subsidiary nor a branch of an existing firm*”(Luger & Koo 2005).

However, defining the term using such a wide basis excludes other features that may be distinctively characteristic to start-up companies. In addition, this definition does not provide a clear frame to the term for two reasons.

First, although the time factor is one of the key elements in this definition, a certain time period needed for evaluating a firms newness is not set, which leaves this aspect open to ones

own interpretations. Considering the rapid growth of many international high-tech start-ups on the one hand, and on the other hand the slower start-up stages of small local firms or home-based businesses without any paid employees, the time of a company's establishment may not be the best comparable measure.

Second, defining firms activeness using at least one hired employee and not by its income, visible trading activities or other indicators, is not grounded enough in their study. Thus, in general, due to a lack of reasoning in the choice of these measures, I find this definition too wide to be adopted without thorough considerations.

## **2.7 Lean Startup and the Lean Movement**

Lean Manufacturing, Lean Enterprise, or Lean Production are management philosophies derived from the Toyota Production System (TPS). James P. Womack and Daniel T. Jones spread the term Lean in their book *Lean Thinking* published in 1996 on which can be said that started the Lean Movement. (Rouse 1996)

Eric Ries based on TPS and the Customer Development process published the book *The Lean Startup* in 2011. (Ries 2011) The book describes how startups companies should adopt the same types of techniques.

The main takeaway from *The Lean Startup* is the iterative loop of what Ries calls The Build, Measure, and Learn - Feedback Loop. Ries argues that both startups and entrepreneurial companies can benefit from these techniques, which eliminate investments that do not produce value for customers.

Ries argues that effective business management and technology the last decade has made American manufacturing output 15% higher, even though the number of jobs is going down. He claims that the manufacturing output is greater than manufacturers know what to do with and that we lack the managerial tools to handle the situation.

There are four key elements in *The Lean Startup*:

- Learning process
- Learning to experiment

- Pivot or persevere
- Creating validated learning

The Lean Startup theory aims at structuring the “just do it” attitude of entrepreneurs, removing chaos and risk. Moreover, encourages entrepreneurial companies to ask, “should this product be built,” instead of “could this product be built.” Answer this question, entrepreneurial companies should experiment by using the build, measure, learn feedback loop.

The Lean Startup argues that it is more important to create a so-called Minimum Viable Product (MVP), and use measurable metrics to learning from it, than to develop rigid product specifications. It also advocates the use of the technique “The 5 Whys” to identify whether to pivot or persevere.

## 2.8 Research Questions

In order to seek the answer to the objective, the following research questions have been formulated:

***RQ1. How do IT startups in Norway assess their performance?***

***RQ2. What are the competencies perceived to be most important by entrepreneurs in IT startups in Norway?***

***RQ3. To what extent does the business environment influence business success of IT startups in Norway***

***RQ4. To what extent do education, entrepreneurial training before and after start-up, and work experiences influence the development of entrepreneurial competencies?***

***RQ5. What is the level of dynamic capabilities of the IT startups in Norway***

***RQ6. Are the IT startups in Norway characterized by a lean startup type?***

### 3 Methodology

The research questions and the restraints for this thesis led to the methodology defined in this chapter. The original meaning of “methodology” means “the way towards the target”, and it is defined as an approach to solving problems (Kvale 1996; Kvale 2007). For research projects the researcher is accountable for collecting needed knowledge (Mehmetoglu 2004). (Mehmetoglu 2004) list the two primary approaches to collecting knowledge for social science research as being the “qualitative” and “quantitative” methods.

Yin (2012) describes the “Case Study Research Process” as a linear, but iterative process, displayed in Figure 2. The first step in this process is planning. During this phase, the research questions are defined, and good a knowledge of strengths and weaknesses of this research is necessary if the case study method is selected. The Case Study Research method is applied in many situations, when the objective is to contribute to the knowledge of individuals, groups, organizational, social, political and related phenomena. It is a commonly used as a research method in areas like psychology, social science, business, and education. Case studies within these areas give the researcher meaningful characteristics of a real-life phenomenon(Yin 2012).

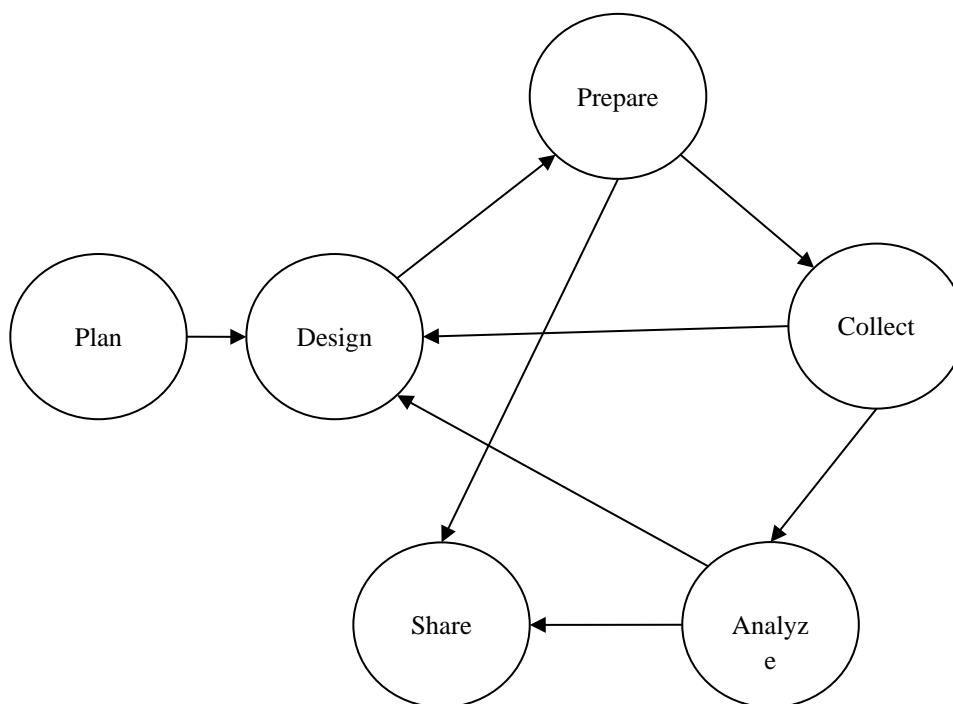
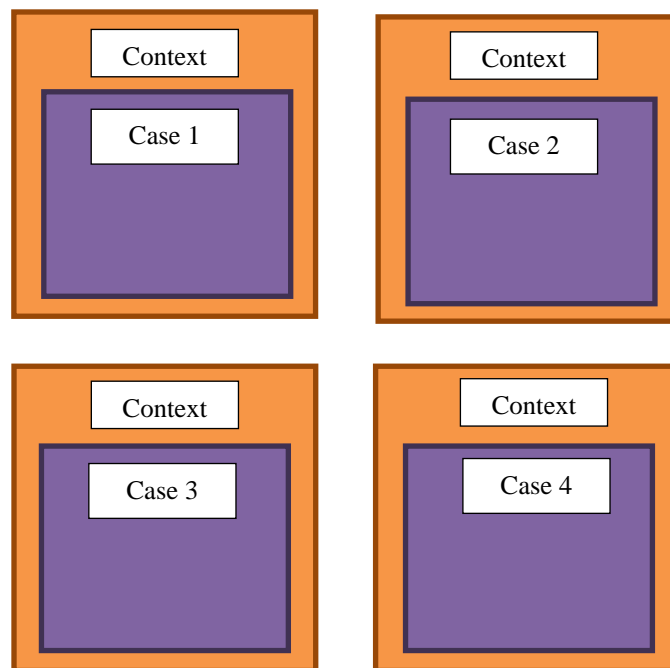


Figure 2. The Case Study Research Process by (Yin, 2012, p. 1)

### 3.1 Research design

To elaborating the research design, I followed the process described in (Yin 2012; Ridder 2012; So 2011; Daughtery 2009), presented in Figure 2. After theory development step, done in the previous chapters, I have selected the cases and the data collection protocols.

Multiple case design was developed as a method to answer the research question. Case study design is recommended when studying complex systems occurring in daily life (Yin 2012, p.4). The use of multiple cases is alike to "conducting several experiments to investigate and elicit intra- and inter-group similarities and differences" (Yin 2012, p.54). Furthermore, the use of multiple cases often "increases the robustness of the study" when suitable implementation of multiple case study design is accomplished (Yin 2012, p.53). The holistic case study design since I have no interest in performing analyses on sub-units of the case (see Figure 3).



Holistic multiple-case design (single-unit of analysis)

Figure 3. Multiple Case Design Source by (Yin 2012)

Research design is the researcher's process of organizing research activities which includes the collection and the data analysis in such a way will accomplish the intentions for the study (Easterby-Smith et al. 2008) (Ringdal 2013). For this research, due to the time constraint, a case study with qualitative interviews was selected as the most appropriate approach. This

chapter will illustrate the process and the different methods and decisions which builds the foundation for the research.

### **Problem definition and research questions**

The purpose of a problem definition is to build a research foundation and depending on the information quantity, the problem definition can be wide or narrow (Everett et al. 2012). A problem that is properly explored will more frequently result in a detailed and concrete problem definition compared to a problem that is relatively unexplored. The research questions descended from the problem definition, and their objective is to allow the researcher to find resolutions to the problem. An accurate description of the problem with specific research question will provide a reliable foundation for the research (Everett et al. 2012).

Based on the pre-interviews, research questions formulated earlier and on research protocol, I have formulated a series of propositions that we will later assess based on the case study data.

**Proposition 1a.** Entrepreneurs use objective performance criteria such as sales and profit

**Proposition 1b.** Entrepreneurs use external performance criteria such as customer satisfaction, other companies in their field and stakeholder opinions

**Proposition 1c.** There is a correlation between the personal assessment of performance and company financial criteria

**Proposition 2a.** Entrepreneurs evaluate the knowledge competence to be important to their success

**Proposition 2b.** Entrepreneurs evaluate the skills sub theme of the competence framework to be important to their success

**Proposition 2c.** Entrepreneurs evaluate the attitudes sub theme of the competence framework to be important to their success

**Proposition 2d.** There is a high level of correlation between what the competencies they evaluate as important and their self assessment

**Proposition 3a.** Entrepreneurs evaluate the business environment as having a significant impact to their success

**Proposition 3b.** Entrepreneurs evaluate the impact of the business environment as being overall positive

**Proposition 4a.** Entrepreneurs assess that education, training before and after start up, and prior work experiences influence their success

**Proposition 4b.** Entrepreneurs assess that their educational and work experiences before starting the business impact their performance as an entrepreneur

**Proposition 5a.** Entrepreneurs of the IT startups in Norway believe that their companies have regenerative dynamic capabilities

**Proposition 5b.** Entrepreneurs of the IT startups in Norway believe that their companies have renewing dynamic capabilities

**Proposition 5c.** Entrepreneur's resources are positively related to start-up's dynamic capabilities

**Proposition 5d.** Dynamic capabilities are related to company performance

**Proposition 6a.** IT startups in Norway are of a lean startup type

**Proposition 6b.** The lean startup type is related to performance



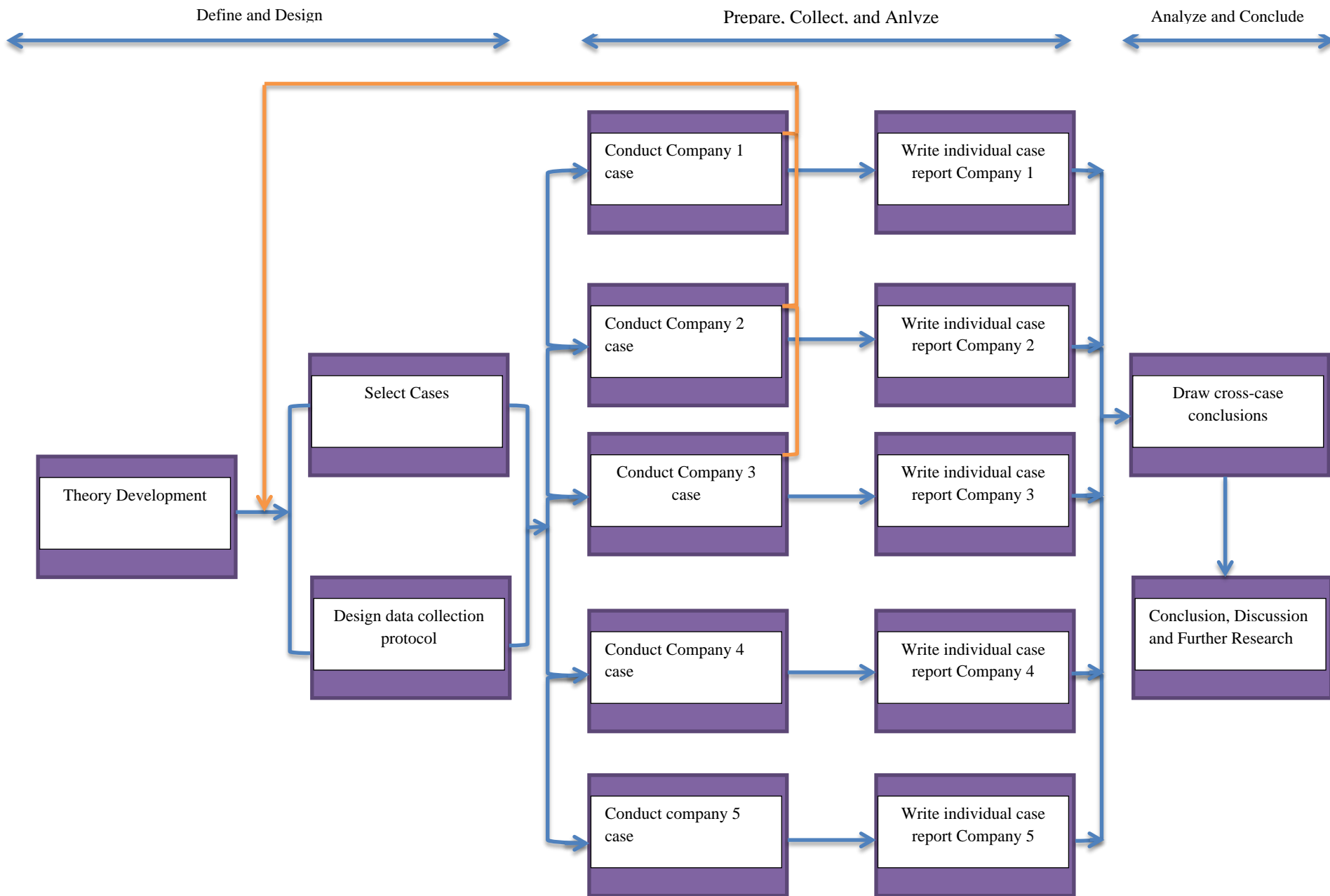


Figure 4. Research design process Source ( COSMOS Corporation mentioned in Yin, 2008)

## 3.2 Chosen methodology

To answer the research questions identified in this thesis, the chosen methodology is a qualitative case-study research based on semi-structured interviews and literature search. This method was primarily chosen because of the time constraint, approximately 3 ½ months from September to December. A quantitative research project was assumed not to meet the time constraint and was, therefore, rejected.

During the first phase of this research project, public available literature in the form of reports and web-pages were collected and considered. The theoretical framework was created, and operationalization developed as the semi-structured interview guide that was used during the interviews with the entrepreneurs of the IT start-ups.

### Case study research method

Case study “*is a way of investigating an empirical topic by following a set of predefined procedures*”(Yin 2012, p. 21). Yin (2012) discusses several research methods and recommends case study where the focus is on contemporary events rather than behavioral events. Research questions for such a case study are framed as “*How*” and “*Why*”, this fits perfectly with the study defined in this thesis.

*“The essence of a case study, the central tendency among all types of case study, is that it tries to illuminate a decision or set of decisions: why they were taken, how they were implemented, and with what result.”* (Schramm 1971, referenced in Yin, 2012, p. 17).

### Qualitative research interview

A qualitative research interview intends to interpret the world from the respondent’s side. It attempts to exhibit the respondent's experience, to reduce the risk of influence from the researcher the interviews must be carefully constructed and carried out (Easterby-Smith et al. 2008, Kvale et al. 2009).

The researcher has to have a well-defined set of skills in order to interpret the information given by the respondent as precisely as possible, McClelland (1965) cited in (Easterby-Smith et al. 2008, p. 117). McClelland’s conclusion was that “*people could not be trusted to say*

*exactly what their motives are*". A risk is that *"the respondent is vague in his response, which leads to misinterpretation by the researcher"* (Easterby-Smith et al. 2008).

*"Laddering"* is a technique described as getting more out of one question. Easterby-Smith et al. (2008) demonstrates that employing the laddering technique will help the respondent to move from facts or statements to descriptive explanations in such a way that they will expose the individual's value base. Questions that can be used for laddering are: *"Why is this?"* and *"Why is this important for you?"* (Easterby-Smith et al. 2008)

Avoiding bias is essential. The researcher is expected to perform as neutral as possible to avoid influence on the respondent. This can be challenging for the researcher when designing and conducting the interview. The researcher might have a predetermined view of what the response to a question will be, but must remain neutral to facilitate un-biased response (Easterby-Smith et al. 2008).

### **3.3 Data collection**

The data collection was performed using a multiple source approach, by using semi-structured interviews with the entrepreneurs themselves, informal discussions with employees and managers in the companies they run and documentary analysis.

In order to provide relevant information for our study, we selected the cases from the Forskningsparken incubator due the data availability and location. To avoid any potentially biases the cases were randomly selected, the only selection principle was that the selected companies were founded in Norway and their lifetime was shorter than 5 years.

Pre-interviews were conducted before the data collection to ensure that theory was correctly selected. I used almost 3 weeks for collecting the data; most of the interviews were conducted the week before Oslo Innovation Week and during Oslo Innovation Week 13th October - 17th October 2014. All the interviews were conducted at the premises of Forskningsparken at the startups company's offices, the local coffee shop and the canteen.

After approaching the entrepreneurs, I have applied semi-structured interviews. In order to ensure that the selected cases could be used in a multiple case analysis, I have developed an interview guide in order to have a clear and consistent set of questions among cases.

The questions were selected based on our theoretical framework and included in addition to open-ended questions some rating scales that serve the purpose of increasing the capability to compare the results between cases.

I used a chain of evidence approach, as recommended by (Yin 2012) in order to increase the reliability of the study. Thus, the reader and any other interested researches could easily trace the steps from the initial questions to the report and conclusions (see Figure 5).

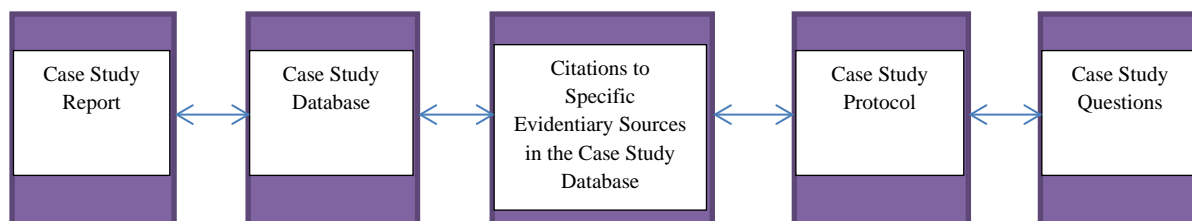


Figure 5. Chain of evidence Source: (Yin 2012)

In addition to the interview guide, the data collection included documentary sources, namely the financial reports of the companies, which would help in assessing their performance, and data from other sources, such as firm's internal data and mass-media web sites.

This allowed me to create individual case study reports, which I later used in the multiple case analysis.

### 3.4 Analytical method

For analysis and interpretation of the data, I recorded and then converted the interview transcripts into statements that could further be coded into concepts in order to be able to compare cases.

Therefore, the first phase of the analysis was coding the raw data into useful categories, followed by a synthesis of the case data.

In the second phase, I sorted the multiple case analysis in order to evaluate the rate of replicability between the case studies and to contrast the differences among them.

### 3.5 Reliability and validity

According to (Yin 2012) there are four tests in order to evaluate the quality of a case study: construct, internal and external validity, and reliability.

Construct validity refers to the correct operationalization of the concepts. In order to ensure the best construct validity, I used multiple sources of evidence and established a clear chain of evidence.

Internal validity is a concern in studies to the degree to which inferences are being made. I have done my best to ensure an adequate level of internal validity, by explanation building and addressing opposing explanations.

External validity concerns with the generalization of the study results. I have addressed this with using replication logic in the multiple case design.

Reliability is the capability to replicate studies results. I created case study protocols and developed a case study database as recommended in order to increase the reliability as much as possible.

## 4 Analysis and Interpretations

During the previous semester, I have individually interviewed several CEOs of young technology based start-ups. The interviews helped me to write my mini case study “How new ventures are assessing their entrepreneurial competencies to improve performance” and led me to the idea to find what steps are the new technology based start-ups taking to improve the firms performance and the entrepreneurial competencies. The interviews led to a trial case study as a new researcher. The topic was originally unrelated to the trial case study. However, during this process I became familiar with effectuation and causation theories and has lead to the development of the current study interest and helped in the data collection for this study.

In the following section, we will investigate the entrepreneurial phenomenon in the IT sector in Norway as well as in the neighboring countries in order to provide further context and a better understanding of the evolution of this sector.

### 4.1 The IT entrepreneurial activity in the European zone

As an indicator of entrepreneurial activity, I used the new registered company data available from Eurostat. This indicator has the main advantage of being comparable across countries and readily available.

The selected indicator was the “Number of births of enterprises in IT” , within the NACE2 code of J62: Computer programming, consultancy and related activities. In order for an easier comparability between countries, I calculated the year-to-year growth rate.

As it is shown in Table 3 Norway is one of the few countries that had experienced growth in this regard from 2009 until 2012, while the majority of the other European countries have experienced one or more years of negative evolution of the indicator.

Country	2005	2006	2007	2008	2009	2010	2011	2012
Austria	-7%	6%	-8%	16%	-10%	10%	-5%	3%
Belgium			25%	4%	-20%	8%	18%	-8%
Bulgaria	17%	9%	79%	-26%	35%	-40%	21%	22%
Czech Republic	-16%	14%	8%	-64%	386%	-2%	-29%	-42%
Denmark						25%	5%	-11%

Estonia	31%	7%	5%	133%	-49%	12%	44%	15%
Finland	2%	-3%	27%	-7%	4%	2%	10%	
France	3%	4%	17%	-2%	82%	14%	-17%	-3%
Germany	-5%	-3%	-4%	20%	-13%	10%	8%	-8%
Hungary	-10%	-11%	-2%	29%	-10%	4%	2%	-19%
Ireland			-2%	1%	7%	2%	22%	
Italy	7%	-22%	35%	-27%	9%	-7%	6%	2%
Latvia	24%	65%	-8%	59%	14%	23%	98%	-17%
Lithuania				6%	-2%	-3%	15%	95%
Luxembourg	2%	6%	-3%	-1%	1%	7%	13%	12%
Netherlands	10%	-24%	81%	15%	-10%	-13%	25%	-35%
Norway	-22%	-7%	16%	-10%	-27%	9%	1%	10%
Poland	11%	24%	1%	14%	6%	20%	3%	9%
Portugal	-10%	6%	19%	-2%	-25%	3%	19%	-6%
Romania	-4%	-14%	0%	4%	-35%	-20%	331%	64%
Slovakia	18%	-13%	25%	10%	49%	3%	36%	-19%
Slovenia	49%	2%	36%	26%	18%	-3%	-14%	4%
Spain	0%	-12%	9%	0%	2%	11%	7%	2%
Sweden	-4%	-6%	27%	-9%	4%	7%	14%	-17%
Switzerland	-5%	5%	13%	-7%	-10%	14%	-13%	-3%
United Kingdom	-1%	-1%	39%	-13%	-32%	33%	17%	-7%

Source: Eurostat

Table 5. The growth rate of the number of new enterprise births in the IT sectors in European countries

This reinforces my opinion that IT start-ups in Norway are an important topic of study, since it has an upwards trend and unsustainable growth could prove to be dangerous for the future evolution of the field.

## 4.2 Entrepreneurial context in Norway

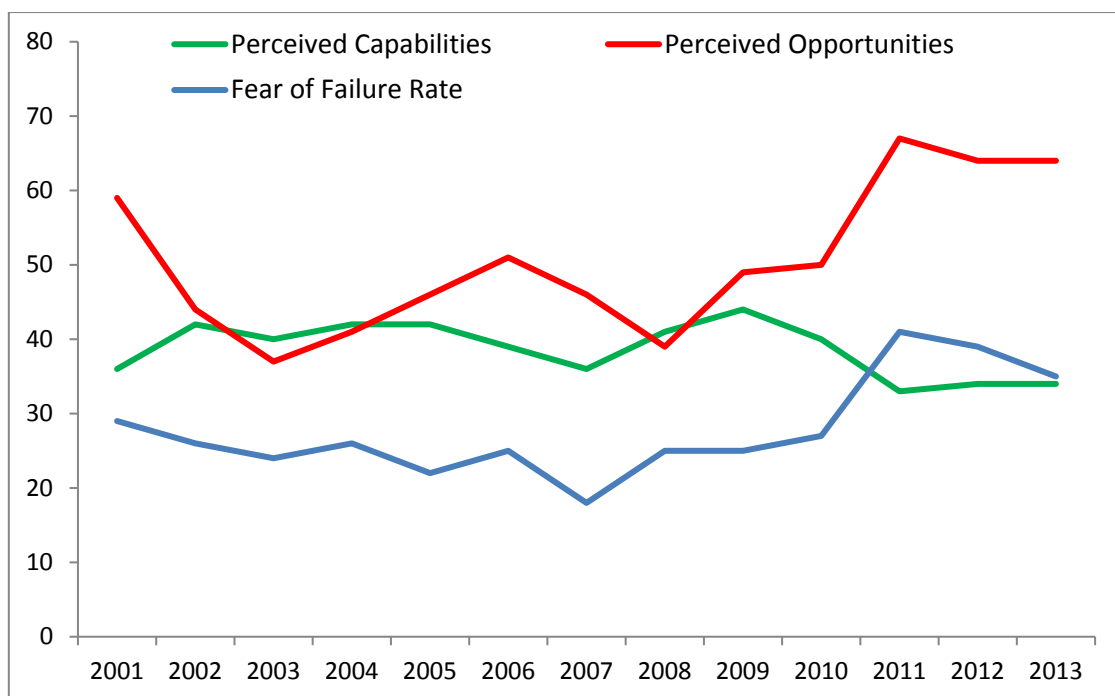
When understanding the Norwegian IT start-up it is also important to have a clear understanding of the entrepreneurial context and attitudes in the entire national economy. Based on the Global Entrepreneurship Monitor data I reached several conclusions about the entrepreneurial environment in Norway:

- The number of adults that believe they have the required skills and knowledge to run a business is declining from 2009 to 2013
- The number of adults that see good opportunities for business is stable, after being on a upwards trend for several years

- The fear of failure has increased dramatically (in 2013, it was twice the rate of 2007)
- Total early stage entrepreneurial activity (TEA) is on a downwards trend
- The growth expectations of TEA involved entrepreneurs are dropping

These data paint an interesting picture of the Norway entrepreneurial activity dynamics. On one hand the IT start-ups are on rise, but the general entrepreneurial context seems to become more opportunity driven, but with a higher fear of failure, contrasting with the low opportunity but low fear of failure before 2010.

This would suggest a major change in the market structure, with entrepreneurs moving towards riskier ventures, and seizing more opportunities that were previously not seen as such. Also the adult population seems to evaluate itself as less capable of running a business, and together with the higher fear of failure, generally negatively related to entrepreneurship (Arenius & Minniti 2005), this could suggest an overall decrease in optimism and auto-efficacy, two factors that often considered being vital in entrepreneurial intention, practice and success (Nishanthi 2014; Rauch & Frese 2007; Busenitz & Barney 1997; Arenius & Minniti 2005).

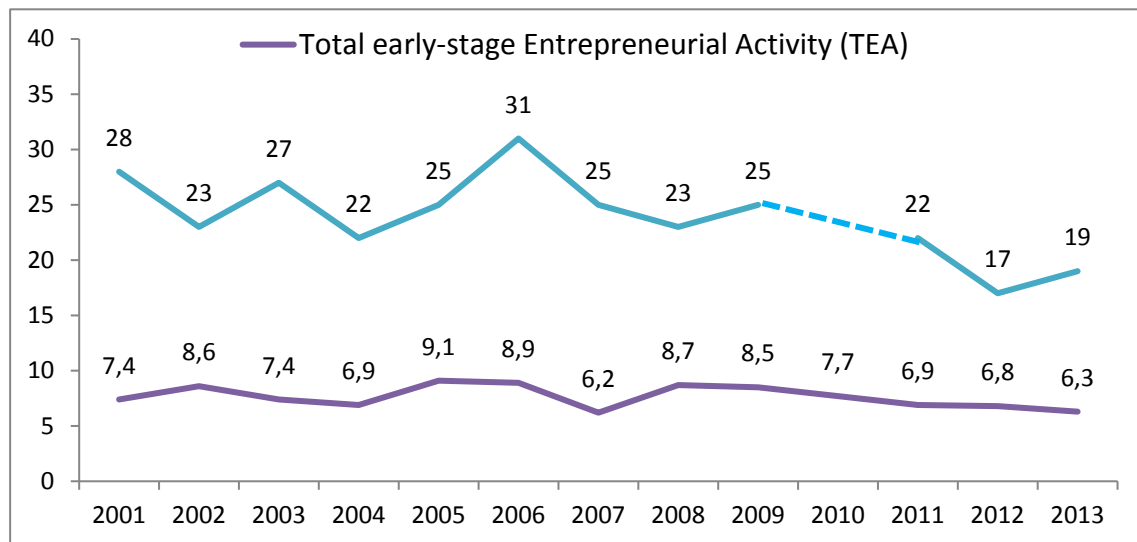


Source: Global Entrepreneurship Monitor

Figure 6. Entrepreneurial context in Norway



This can also be seen in Figure 10, as optimism in on the decrease, and so is general total early-stage entrepreneurial activity. This would provide support to my assumptions regarding the conection between perceived competencies and entrepreneurial activity, that I will further test with the use of the multiple case study design in the following section.



Source: Global Entrepreneurship Monitor

Figure 7. Total early stage entrepreneurial activity and growth expectations in Norway

## 4.3 Case study results

The following section will include a brief presentation of each case followed by the case report and analysis.

Due to concerns regarding privacy and in order to prevent any distortions to the responses of the entrepreneurs due to these concerns, which are known to influence responding to questions that are connected to personal issues or performance (Richman et al. 1999) I have decided to collect the responses anonymously, with the identity of the company and the entrepreneur in question made available only with the explicit agreement on their behalf.

### 4.3.1 Company 1

The first company we investigated is an IT startup founded in 2011 by 4 entrepreneur's , which offers consultancy and support for a variety of business applications, including optimizing the customers systems and providing hosting and security services. 50% of the

company was sold to 2 investor firms in 2012 and 15% was sold to another firm acting in the same IT sector. Besides the 4 founders the company has 2 fulltime employees. The company has around 40 customers 30 of them being big customers from which 10 of them are multinationals. The founders of the company are having entrepreneurial experience; all of them were and are implicated in other companies from owning a piece of the business till being a member of the board of directors..

Its performance is considered to be good, with a high growth rate based on sales (doubled its sales values year-to-year in 2012 and 2013) and good stability indicators.

The interview was carried out at offices of the Company 1 at Forskningsparken. During the interview I had the chance to talk with all the founders of the company and with a couple of the company's clients.

Table 6. Company 1 case study results and analysis

Theory		Case	
Research question	Proposition	Company 1 analysis	
RQ1. How do IT startups in Norway assess their performance?	Proposition 1a. Entrepreneurs use objective performance criteria such as sales and profit		The entrepreneur assesses the performance criteria for the company as being financial, customer satisfaction, employee satisfaction. It feels its performance is positive, above average for its sector, and it has positive feedback from stakeholders
	Proposition 1b. Entrepreneurs use external performance criteria such as customer satisfaction, other companies in their field and stakeholder opinions		
	Proposition 1c. There is a correlation between the personal assessment of performance and company financial criteria		Company financial performance is good, with a positive and growing profit and good stability indicators.
RQ2. What are the competencies perceived to be most important by entrepreneurs in IT startups in Norway?	Proposition 2a. Entrepreneurs evaluate the knowledge competence to be important to their success		
		Knowledge	Important
	Proposition 2b. Entrepreneurs evaluate the skills sub theme of the competence framework to be important to their success	Marketing skills	Important
		Opportunity skills	Average
		Resource skills	Important
		Interpersonal skills	Average
		Learning skills	Important
		Strategic skills	Important
	Proposition 2c. Entrepreneurs evaluate the attitudes sub theme of the competence framework to be important to	Entrepreneurial passion	Average
		Self-efficacy	Important
		Pro-activeness	Average
		Tolerance to uncertainty	Important

Theory		Case	
Research question	Proposition	Company 1 analysis	
	their success	Perseverance	Average
		Innovativeness	Average
	Proposition 2d. There is a high level of correlation between what the competencies they evaluate as important and their self-assessment	The entrepreneur rate's himself a above the threshold on 12 out of 13 competencies	
RQ3. To what extent does the business environment influence business success of IT startups in Norway	Proposition 3a. Entrepreneurs, the business environment as having a significant impact to their success	Positive factors: High level of knowledge, social networking. Negative factors: Lack of interesting tasks, too little commitment from the management, possibilities of the location	
	Proposition 3b. Entrepreneurs evaluate the impact of the business environment as being overall positive	Environment impact is considered to be distinctly positive	
RQ4. To what extent do education, entrepreneurial training before and after start-up, and work experiences influence the development of entrepreneurial competencies?	Proposition 4a. Entrepreneurs asses that education, training before and after start up, and prior work experiences influence their success	Education level	Vital
		Entrepreneurial training before starting the business	Less important
		Entrepreneurial training after starting the business	Important
		Previous work experience	Vital
		Previous entrepreneurial experience	Sometimes important
	Proposition 4b. Entrepreneurs asses that their educational and work experiences before starting the business impact their performance as an entrepreneur	The opinion of the entrepreneurs is that after starting the business, the entrepreneur grows along with development of the business. Entrepreneurship requires both money and time; both factors here could be a challenge	
RQ5. What is the level of dynamic capabilities of the IT startups in Norway	Proposition 5a. Entrepreneurs of the IT startups in Norway believe that their companies have regenerative dynamic capabilities	Reconfiguration	Average
		Leveraging	High
		Learning	Very High
		The entrepreneur believes that the directions of the company are controlled by the customers and the company develops accordingly, and also the economy as a whole can influence the direction the company develops.	
	Proposition 5b. Entrepreneurs of the IT startups in Norway believe that their companies have renewing dynamic capabilities	Sensing and seizing	Low
		Knowledge Creation	Average
		Knowledge Integration	High
		The entrepreneur considers his company to be in the top area of knowledge in their field and that they are very responsive to new knowledge, with trainings and courses being undertaken as often as possible, within their budget capabilities	
	Proposition 5c. Entrepreneur's resources are positively related to start-up's dynamic capabilities	The entrepreneur rates his competencies on average and above, and feels that a lot of his knowledge was acquired after running the business. At the same time, the company's dynamic capabilities are rated as average towards high	

Theory		Case	
Research question	Proposition	Company 1 analysis	
	Proposition 5d. Dynamic capabilities are related to company performance		The entrepreneur evaluated the companies dynamic capabilities as average or higher, and the company performance is objectively good
RQ6. Are the IT startups in Norway characterized by a lean startup type?	Proposition 6a. IT startups in Norway are of a lean startup type		The company doesn't have an accurate way of testing the potential customers' reaction and demand for new products, but is listening to the technical personal, which gives them suggestions for new product, or renewal of existing products
			Potential clients have a few weeks to interact with new products before they are launched
	Proposition 6b. The lean startup type is related to performance		Company claims to be of the lean startup type and financial performance is positive
Case supports the Proposition	Case partly supports the Proposition	Case doesn't support the Proposition	Data not available

Company 1 has good financial results and the entrepreneur-owner is using both profit and sales based criteria and external results, like customer satisfaction, and so the propositions resulting for my first research questions are supported in his case.

The entrepreneur finds that most competencies are needed on a high level, and rates himself above the level he thinks necessary in almost all criteria, and thus my second research questions' propositions are at least partly supported.

The entrepreneur has a complex relation with the business environment, with both facilitating and hindering factors being considered, however he finds the impact to be overall positive. My third series of propositions are therefore supported as well.

The entrepreneur doesn't find that training or experience in the entrepreneurial field is necessary before starting a business, and that in his case the impact of education and previous experience has been only moderate. My forth series of propositions are only party supported in this case.

The entrepreneur rates his companies regenerative dynamic capabilities as high, and renewing capabilities are mixed, sensing and sensing being rated as low. Under these circumstances I have only partly validated my propositions for research question number five.

The company has some characteristics of lean startup, and its performance is good, therefore the last set of propositions is at least partly supported.

### 4.3.2 Company 2

The second company we investigated is an IT startup founded in 2013; the company developed a new very flexible cloud platform for the IOT. The company is at the seeding level and it is actively searching for investors. In the company, the entrepreneur invested until now 550.000 nok, and he secured himself with a patent in USA on the technology that he developed. The entrepreneur moved all the development to Eastern Europe to keep the costs as low as possible. The company wants to sell its services as premium services to energy companies. The founder has entrepreneurial experience.

Its performance is considered to be bad, since the company is not able to cover the running costs. Regarding prospect of growth or a buy out for the entrepreneur, the company scores very high since the company was approached from Siemens Ventures and Bekk Enegytenester.

The interview was carried out at Forskningsparken cafeteria during the Oslo Innovation Week event.

Table 7. Company 2 case study results and analysis

Theory		Case	
Research question	Proposition	Company 2 analysis	
RQ1. How do IT startups in Norway assess their performance?	Proposition 1a. Entrepreneurs use objective performance criteria such as sales and profit	The entrepreneur assesses the performance criteria for the company as being flexibility and ease of integration of their solution based on new challenges, and uses information from the market and competition.	
	Proposition 1b. Entrepreneurs use external performance criteria such as customer satisfaction, other companies in their field and stakeholder opinions		
	Proposition 1c. There is a correlation between the personal assessment of performance and company financial criteria		
RQ2. What are the competencies perceived to be most important by entrepreneurs in It startups in Norway?	Proposition 2a. Entrepreneurs evaluate the knowledge competence to be important to their success	Knowledge	Important
	Proposition 2b. Entrepreneurs evaluate the skills sub theme of the competence framework to be important to their success	Marketing skills	Important
		Opportunity skills	Average
		Resource skills	Important
		Interpersonal skills	Average
		Learning skills	Important
		Strategic skills	Important
	Proposition 2c. Entrepreneurs evaluate the attitudes sub theme of the competence framework to be important	Entrepreneurial passion	Average
		Self-efficacy	Average

Theory		Case	
Research question	Proposition	Company 2 analysis	
	to their success	Pro-activeness	Average
		Tolerance to uncertainty	Important
		Perseverance	Average
		Innovativeness	Average
	Proposition 2d. There is a high level of correlation between what the competencies they evaluate as important and their self assessment	The entrepreneur rate's himself a above the threshold on 9 out of 13 competencies	
RQ3. To what extent does the business environment influence business success of IT startups in Norway	Proposition 3a. Entrepreneurs evaluate the business environment as having a significant impact to their success	Internet offers new growth potential and ease of scale but also Increased competition	
	Proposition 3b. Entrepreneurs evaluate the impact of the business environment as being overall positive	Environment impact is considered to be distinctly positive	
RQ4. To what extent do education, entrepreneurial training before and after start-up, and work experiences influence the development of entrepreneurial competencies?	Proposition 4a. Entrepreneurs asses that education, training before and after start up, and prior work experiences influence their success	Education level	Important
		Entrepreneurial training before starting the business	Sometimes important
		Entrepreneurial training after starting the business	Vital
		Previous work experience	Important
		Previous entrepreneurial experience	Vital
	Proposition 4b. Entrepreneurs asses that their educational and work experiences before starting the business impact their performance as an entrepreneur	Their core product was shaped based on previous real work issues and projected to solve similar problems to other future customers	
RQ5. What is the level of dynamic capabilities of the IT startups in Norway	Proposition 5a. Entrepreneurs of the IT startups in Norway believe that their companies have regenerative dynamic capabilities	Reconfiguration	Average
		Leveraging	High
		Learning	Very High
		The entrepreneur believes that the company likes to improve based on customer feedback and experiment with new things	
	Proposition 5b. Entrepreneurs of the IT startups in Norway believe that their companies have renewing dynamic capabilities	Sensing and seizing	Low
		Knowledge Creation	Average
		Knowledge Integration	High
		The company acquires new knowledge from various events, technical presentations, and continuous learning.	
	Proposition 5c. Entrepreneur's resources are positively related to start-up's dynamic capabilities	The entrepreneur rates his competencies on average and above, and feels that a lot of his knowledge was acquired before	

Theory		Case	
Research question	Proposition	Company 2 analysis	
RQ6. Are the IT startups in Norway characterized by a lean startup type?			running the business. At the same time, the company's dynamic capabilities are rated as average towards high
	Proposition 5d. Dynamic capabilities are related to company performance		
	Proposition 6. IT startups in Norway are of a lean startup type		The company is active in discussion groups and has an open attitude regarding new features or product improvements. Potential clients can live test new products, follow the progress and improve it.
	Proposition 6b. The lean startup type is related to performance		
Case supports the Proposition	Case partly supports the Proposition	Case doesn't support the Proposition	Data not available

Company 2 performance is considered to be bad, however since it's not yet active I can't use this criteria to validate my propositions regarding performance, however the criteria the entrepreneur uses are based on comparison with external factors, such as competitors.

Knowledge and skills are rated as important, while attitudes only partly so. At the same the entrepreneur rates himself below what he feels is necessary on 30% of the criteria used. My propositions regarding the second research question therefore are only partly supported in this case.

The impact of the environment is important and positive, with the entrepreneur trying to seize the opportunities offered by the online platform. In this case my propositions are fully supported.

The entrepreneurs' education and experience was a critical factor in the decision to open a business and the product is designed to solve practical issues he faced himself. At the same time he assesses in general education and experience as being important factors for an entrepreneur and so my propositions are supported, even some only partly.

Regarding competencies, the entrepreneur rates his company as having good regenerative capabilities, but mixed renewing ones. At the same time the correlation between his skill set and the company competencies is not evident. I conclude that in this case the corresponding propositions are only partly supported.

The startup fits the criteria for a lean startup, and thus this proposition is supported.

### 4.3.3 Company 3

The third company we investigated is an IT startup founded in 2012; the company has 3 founders which are also the only employees for now. Company 3 is developing apps, infant games, which are being sold through the Apple and Google online stores. Company 3 began to know success after a scandal in the USA, the company was accused that it developed a game too rough for children base on Norwegian fairy tales. The company exploited the bad publicity from USA and got noticed in the Norwegian media, the company secured itself with an investor in 2013. The founders of the company are all under 30 years old with formal IT and entrepreneurial education at their first entrepreneurial experience.

Its performance is considered to be good, with a high growth rate based on sales (year-to-year in 2012 and 2013) good liquidity and good stability indicators.

The interview was carried out in 2 days at Forskningsparken during the Oslo Innovation Week event.

Table 8. Company 3 case study results and analysis

Theory		Case	
Research question	Proposition	Company 3 analysis	
RQ1. How do IT startups in Norway assess their performance?	Proposition 1a. Entrepreneurs use objective performance criteria such as sales and profit		The entrepreneur assesses the performance criteria for the company as number of downloads compared to the international market and the return from payments. It evaluates its performance as medium compared to other similar companies and believes stakeholders are satisfied with the company
	Proposition 1b. Entrepreneurs use external performance criteria such as customer satisfaction, other companies in their field and stakeholder opinions		
	Proposition 1c. There is a correlation between the personal assessment of performance and company financial criteria		Company financial indicators are mixed. The company is experiencing loss; however, stability indicators are good.
RQ2. What are the competencies perceived to be most important by entrepreneurs in IT startups in Norway?	Proposition 2a. Entrepreneurs evaluate the knowledge competence to be important to their success		
	Proposition 2b. Entrepreneurs evaluate the skills sub theme of the competence framework to be important to their success	Knowledge	Important
		Marketing skills	Important
		Opportunity skills	Average
		Resource skills	Important
		Interpersonal skills	Average
		Learning skills	Important
		Strategic skills	Important



Theory		Case	
Research question	Proposition	Company 3 analysis	
	Proposition 2c. Entrepreneurs evaluate the attitudes sub theme of the competence framework to be important to their success	Entrepreneurial passion	Important
		Self-efficacy	Important
		Pro-activeness	Important
		Tolerance to uncertainty	Average
		Perseverance	Important
		Innovativeness	Important
	Proposition 2d. There is a high level of correlation between what the competencies they evaluate as important and their self assessment	The entrepreneur rate's himself a above the threshold on 12 out of 13 competencies	
RQ3. To what extent does the business environment influence business success of IT startups in Norway	Proposition 3a. Entrepreneurs evaluate the business environment as having a significant impact to their success	The entrepreneur feels that Norway does not have an entrepreneurship culture, and his generation is shaping it and thus when he started operating financing the business was a bit tricky.	
	Proposition 3b. Entrepreneurs evaluate the impact of the business environment as being overall positive	Environment impact is considered to be neither positive nor negative	
RQ4. To what extent do education, entrepreneurial training before and after start-up, and work experiences influence the development of entrepreneurial competencies?	Proposition 4a. Entrepreneurs asses that education, training before and after start up, and prior work experiences influence their success	Education level	Vital
		Entrepreneurial training before starting the business	Important
		Entrepreneurial training after starting the business	Vital
		Previous work experience	Important
		Previous entrepreneurial experience	Vital
	Proposition 4b. Entrepreneurs asses that their educational and work experiences before starting the business impact their performance as an entrepreneur	The entrepreneur feels that the network he build during his education and the mentoring he received from it had a positive effect on his performance. His interest in becoming an entrepreneurs was sparked by a formal course in entrepreneurship, and his formal education helped him in both marketing and controlling financial aspects of the company	
RQ5. What is the level of dynamic capabilities of the IT startups in Norway	Proposition 5a. Entrepreneurs of the IT startups in Norway believe that their companies have regenerative dynamic capabilities	Reconfiguration	High
		Leveraging	High
		Learning	Very High
		The entrepreneur believes that the company learned a lot and is continuing to learn. Lack of experience in PR was supplemented with external consultancy; however after an initial negative experience they are using consultants only for learning purposes.	
	Proposition 5b. Entrepreneurs of the IT startups in Norway believe that their companies have renewing dynamic capabilities	Sensing and seizing	High
		Knowledge Creation	Average
		Knowledge Integration	High
		The company had a good technical knowledge base from formal education but is working on acquiring new marketing knowledge from external sources.	

Theory		Case	
Research question	Proposition	Company 3 analysis	
	Proposition 5c. Entrepreneur's resources are positively related to start-up's dynamic capabilities		The entrepreneur rates his competencies on generally high and feels that a lot of his knowledge and expertise was acquired before running the business. At the same time, the company's dynamic capabilities are rated as high
	Proposition 5d. Dynamic capabilities are related to company performance		The entrepreneur evaluated the company's dynamic capabilities as average or higher, and the company performance is mixed.
RQ6. Are the IT startups in Norway characterized by a lean startup type?	Proposition 6. IT startups in Norway are of a lean startup type		The company tests their new programs locally and is involving students extensively. After a previous negative experience, they are more careful and using international feedback as they feel Norway is a small market
			Potential clients have a lot of interaction with new products; the company representatives are traveling to schools to test them and are very responsive to feedback, especially negative
	Proposition 6b. The lean startup type is related to performance		Company claims to be of the lean startup type and financial performance is mixed
Case supports the Proposition	Case partly supports the Proposition	Case doesn't support the Proposition	Data not available

Company 3 performance is mixed, however the entrepreneur assess it as average for its field. He uses objective criteria, namely the number of downloads and income. From the information collected I can conclude that my propositions regarding this issue are at least partly supported.

Regarding competencies, he rated all competencies as average or important and feels that he has 92% them above the required level. So my propositions are fully supported in this case.

The environment is considered to be an important factor in the company's activities and this supports our proposition; however its impact is not assessed as overall positive or negative. In this case the corresponding proposition is only partly supported.

Education and work experience are rated as vital or important and the entrepreneur considers that his personal education and work experience played an important role both in his decision to start a business and his performance afterwards. These results support my propositions.

Regarding the dynamic capabilities, the entrepreneur rates his company as being average or above average on all of them, and they are related with his own performance, thus our propositions regarding these issues are fully supported. However, since company performance is mixed, my proposition regarding the relation between it and dynamic capabilities is only partly supported.

The company is evaluated as having the characteristics of the lean startup type, thus supporting our proposition. However as its performance is mixed, the proposition regarding the relation between performance and the lean startup is only partly supported.

#### 4.3.4 Company 4

The fourth company we investigated is an IT startup founded in 2009; the company has four employees two of them being the founders. Company 4 has developed a CRM (Content Management System) standalone app and a cloud app for organizing and managing daily tasks. Only one of the founders has entrepreneurial experience. The founder owns only 22% of the company the other rest was sold to investors in 2010, 2011 and 2012.

Its performance is considered to be bad, since the company is barely able to cover the running costs. The company scores low on sales based on sales reports (from 2010 to 2013) with low liquidity and low stability indicators.

The interview was carried out for 2 days at offices of the Company 4 at Forskningsparken during the Oslo Innovation Week event.

Table 9. Company 4 case study results and analysis

Theory		Case	
Research question	Proposition	Company 4 analysis	
RQ1. How do IT startups in Norway assess their performance?	Proposition 1a. Entrepreneurs use objective performance criteria such as sales and profit		The performance criteria used by the entrepreneur are growth of customers (as a result of experienced product value and satisfaction) and growth in income (as a result of growth of customers). The entrepreneur assess it's company as performing under expectations and feels that comparison with other companies would be impossible, as their objectives are unknown.
	Proposition 1b. Entrepreneurs use external performance criteria such as customer satisfaction, other companies in their field and stakeholder opinions		
	Proposition 1c. There is a correlation between the personal assessment of performance and company financial criteria		Company financial indicators are negative. The company is experiencing loss, and the stability indicators are negative.
RQ2. What are the competencies perceived to be most important by entrepreneurs in It startups in Norway?	Proposition 2a. Entrepreneurs evaluate the knowledge competence to be important to their success		
	Proposition 2b. Entrepreneurs evaluate the skills sub theme of the competence framework to be important to their success	Knowledge	Important
		Marketing skills	Average
		Opportunity skills	Average
		Resource skills	Average
		Interpersonal skills	Average
		Learning skills	Important
		Strategic skills	Average
	Proposition 2c. Entrepreneurs evaluate the	Entrepreneurial passion	Important
		Self-efficacy	Important

Theory		Case	
Research question	Proposition	Company 4 analysis	
	attitudes sub theme of the competence framework to be important to their success	Pro-activeness	Important
		Tolerance to uncertainty	Important
		Perseverance	Important
		Innovativeness	Average
	Proposition 2d. There is a high level of correlation between what the competencies they evaluate as important and their self assessment	The entrepreneur rate's himself a above the threshold on 10 out of 13 competencies	
RQ3. To what extent does the business environment influence business success of IT startups in Norway	Proposition 3a. Entrepreneurs evaluate the business environment as having a significant impact to their success	The entrepreneur feels that there are too many simultaneously projects and a lot of stresses from the environment	
	Proposition 3b. Entrepreneurs evaluate the impact of the business environment as being overall positive	Environment impact is considered to be positive	
RQ4. To what extent do education, entrepreneurial training before and after start-up, and work experiences influence the development of entrepreneurial competencies?	Proposition 4a. Entrepreneurs asses that education, training before and after start up, and prior work experiences influence their success	Education level	Sometimes important
		Entrepreneurial training before starting the business	Sometimes important
		Entrepreneurial training after starting the business	Important
		Previous work experience	Important
		Previous entrepreneurial experience	Sometimes important
	Proposition 4b. Entrepreneurs asses that their educational and work experiences before starting the business impact their performance as an entrepreneur	The entrepreneur thinks that with an academic background, knowing various methodologies have been helpful to structure things. A good foundation within his field of expertise makes him do better decisions.	
RQ5. What is the level of dynamic capabilities of the IT startups in Norway	Proposition 5a. Entrepreneurs of the IT startups in Norway believe that their companies have regenerative dynamic capabilities	Reconfiguration	Average
		Leveraging	High
		Learning	Average
		The entrepreneur believes that the company learned a lot and is continuing to learn. Lack of experience in PR was supplemented with external consultancy; however after an initial negative experience they are using consultants only for learning purposes.	
	Proposition 5b. Entrepreneurs of the IT startups in Norway believe that their companies have renewing dynamic capabilities	Sensing and seizing	Low
		Knowledge Creation	Very high
		Knowledge Integration	Very high
		They haven't decided where to position themselves.	

Theory		Case	
Research question	Proposition	Company 4 analysis	
	Proposition 5c. Entrepreneur's resources are positively related to start-up's dynamic capabilities		The entrepreneur rates his competencies on average and high, and feels that a lot of his knowledge was acquired before running the business. At the same time, the company's dynamic capabilities are rated as average towards high
	Proposition 5d. Dynamic capabilities are related to company performance		Dynamic capabilities are average/high, and company performance is low
RQ6. Are the IT startups in Norway characterized by a lean startup type?	Proposition 6. IT startups in Norway are of a lean startup type		The company undergoes quantitative and qualitative analysis and is in daily touch with customers around the world. The company has several stages before launch, including testing in the real production environment
	Proposition 6b. The lean startup type is related to performance		Company claims to be of the lean startup type and financial performance is negative
Case supports the Proposition	Case partly supports the Proposition	Case doesn't support the Proposition	Data not available

Company 4 is experiencing loss, and thus its performance is being rated as being objectively low. This is in agreement with the evaluation made by the respondent, supporting my proposition. The criteria used for performance assessment by the company are mostly related to the number of customers and financial criteria, with little emphasis on the competition, and thus my propositions are only partly supported.

While the entrepreneur rates as important the knowledge and attitudes, the skills subset of the competence framework is only seen as being needed at an average level, and so for it my proposition is only partly supported. There also an overlap between self-rating and the evaluation of needed competencies in the case of 10 out of the 13 criteria used.

Regarding business environment impact, my propositions are supported, since the respondent rated the impact as being both significant to its business and having a positive influence.

Education and experience are considered only sometimes important to business success, thus only partly supporting my proposition, however in its own case the respondent felt that they played a major role, and thus my second proposition on this topic has been supported.

The dynamic capabilities of the company are rated as mixed. The regenerative capabilities are considered to be present at an average level and only some of the renewing ones are thought to be so. Our proposition is only partly supported in this case. The relation between capabilities and performance is somewhat visible, with a low or average rating of certain capabilities coupled with negative company financial indicators.

Regarding the lean startup criteria, the self-report would place company 4 in this category, proving evidence for my proposition. However since its performance is negative, it doesn't support at all my proposition that the lean startup type would be related to performance.

### 4.3.5 Company 5

The fifth company we investigated is an IT startup founded in 2010; the company has 3 employees one of them being the founder. Company 5 has developed a few application designated for the marine and oil and gas sector that are virtualizing and simulating technological processes. The founder doesn't have entrepreneurial experience or entrepreneurial education. The founder owns 85% of the company the other rest is owned by an investor. The company recently moved the offices from Forskningsparken to Fornebu in order to be closer to their clients.

Its performance is considered to be good, with a high growth rate based on sales and the new product released in 2013 (50% increase in sales values between 2012 till 2013) good liquidity and good stability indicators.

The interview was carried out for 2 days at offices of the Company 5 in Fornebu in one day and the next day at Forskningsparken cafeteria during the Oslo Innovation Week event.

Table 10. Company 5 case study results and analysis

Theory		Case
Research question	Proposition	Company 5 analysis
RQ1. How do IT startups in Norway assess their performance?	Proposition 1a. Entrepreneurs use objective performance criteria such as sales and profit	The performance criteria used are profitability, bonuses, successful sales and interesting projects. Current performance is considered to be lower than expected as it has potential for more performance. When compared to other companies in the field, it lacks good focus on efficiency and resource utilization. Stakeholders have a positive view as they feel survivability was the main objective of the first years.
	Proposition 1b. Entrepreneurs use external performance criteria such as customer satisfaction, other companies in their field and stakeholder opinions	
	Proposition 1c. There is a correlation between the personal assessment of performance and company financial criteria	Company financial indicators are mixed. The company is experiencing loss; however stability indicators are good.

Theory		Case	
Research question	Proposition	Company 5 analysis	
RQ2. What are the competencies perceived to be most important by entrepreneurs in IT startups in Norway?	Proposition 2a. Entrepreneurs evaluate the knowledge competence to be important to their success	Knowledge	Important
	Proposition 2b. Entrepreneurs evaluate the skills sub theme of the competence framework to be important to their success	Marketing skills	Average
		Opportunity skills	Not important
		Resource skills	Not important
		Interpersonal skills	Important
		Learning skills	Important
		Strategic skills	Average
	Proposition 2c. Entrepreneurs evaluate the attitudes sub theme of the competence framework to be important to their success	Entrepreneurial passion	Important
		Self-efficacy	Average
		Pro-activeness	Average
		Tolerance to uncertainty	Average
		Perseverance	Average
		Innovativeness	Important
	Proposition 2d. There is a high level of correlation between what the competencies they evaluate as important and their self assessment	The entrepreneur rate's himself a above the threshold on 12 out of 13 competencies	
RQ3. To what extent does the business environment influence business success of IT startups in Norway	Proposition 3a. Entrepreneurs evaluate the business environment as having a significant impact to their success	The company is focused on the sells effort and considers that the environment, both external and internal, can prove to be hindering to this activity, however when the environment is positive to the sales effort the returns are high.	
	Proposition 3b. Entrepreneurs evaluate the impact of the business environment as being overall positive	Environment impact is considered to be positive	
RQ4. To what extent do education, entrepreneurial training before and after start-up, and work experiences influence the development of entrepreneurial competencies?	Proposition 4a. Entrepreneurs asses that education, training before and after start up, and prior work experiences influence their success	Education level	Sometimes important
		Entrepreneurial training before starting the business	Sometimes important
		Entrepreneurial training after starting the business	Less important
		Previous work experience	Important
		Previous entrepreneurial experience	Important
	Proposition 4b. Entrepreneurs asses that their educational and work experiences before starting the business impact their performance as an entrepreneur	The founder/CEO of the company did not have entrepreneurial experience. The board considers that the entrepreneur is a good leader with vision, but is lacking management skills that could better organize and make more efficient our business.	



Theory		Case	
Research question	Proposition	Company 5 analysis	
RQ5. What is the level of dynamic capabilities of the IT startups in Norway	Proposition 5a. Entrepreneurs of the IT startups in Norway believe that their companies have regenerative dynamic capabilities	Reconfiguration	Average
		Leveraging	High
		Learning	High
		The entrepreneur proactively teaches and trains the others, who learn passively. The company has a constant exchange to information/news/updates that keeps it connected to the market	
	Proposition 5b. Entrepreneurs of the IT startups in Norway believe that their companies have renewing dynamic capabilities	Sensing and seizing	Very high
		Knowledge Creation	High
		Knowledge Integration	High
		The company has a clear positioning and branding strategy.	
	Proposition 5c. Entrepreneur's resources are positively related to start-up's dynamic capabilities	The entrepreneur rates his competencies on average and high, and his personal resources were mixed at the start of the business, with some management skills lacking. At the same time, the company's dynamic capabilities are rated as high	
	Proposition 5d. Dynamic capabilities are related to company performance	Dynamic capabilities are average to high and company performance is average to high	
RQ6. Are the IT startups in Norway characterized by a lean startup type?	Proposition 6. IT startups in Norway are of a lean startup type	The company has constant dialogue with existing and potential clients to find out what is their area of interest. Also, the employees constantly brainstorm about new possible areas of interest/products in the industry that could be interesting, necessary.	
		The company creates custom products, so they don't develop new products unless there is a clear demand	
	Proposition 6b. The lean startup type is related to performance	Company claims to be of the lean startup type and financial performance is mixed	

Case supports the preposition	Case partly supports the preposition	Case doesn't support the preposition	Data not available
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The performance of company 5 is rated by its owned based on financial criteria, customer and stakeholder feedback and in relation with their competitors. The company has mixed financial indicators and its performance is rated as being lower than expected, and thus there is a good relation between the two. I conclude that all propositions related to the first research question have been supported in this case.

With the exception of knowledge, the other competencies have received mixed ratings, with some being regarded as important, while others average or even not important. In this case I consider that my propositions have received only partly support from the case data. However the entrepreneur rates himself above the threshold on 12 out of the 13 criteria. My preposition regarding the relation between self ratings and criteria for success is supported.



The business environment is rated as important in impact and positive in direction, supporting my propositions in this case.

Education and experience receive mixed support, with entrepreneurial education after starting the business being considered less important. There also the fact that the entrepreneur lacked experience and thus is currently having difficulty managing the company, and thus I consider the second proposition to be supported.

The dynamic capabilities are rated as high or at the very least average, and so my proposition regarding their presence in the IT startups is supported by the evidence from this case. However, since the performance of the company is mixed, my last proposition on this research question has only received some support, since we expected a company with the reported levels of dynamic capabilities to be performing better.

The same pattern is noticed in the lean startup section. The company is rated as meeting the criteria for a lean startup, but the strong relation with performance is lacking. This could be an indicator that either my propositions are in need of restating, or that the company self-rating is overly positive.

## 5 Conclusion

After analyzing each case independently, we proceeded to a cross-case analysis that would enable us to draw conclusions regarding the propositions we put forward, the results of which are presented in table 11.

Table 11. Cross-case analysis

Research question	Proposition		C1	C2	C3	C4	C5
RQ1. How do IT startups in Norway assess their performance?	Proposition 1a. Entrepreneurs use objective performance criteria such as sales and profit						
	Proposition 1b. Entrepreneurs use external performance criteria such as customer satisfaction, other companies in their field and stakeholder opinions						
	Proposition 1c. There is a correlation between the personal assessment of performance and company financial criteria						
RQ2. What are the competencies perceived to be most important by entrepreneurs in IT startups in Norway?	Proposition 2a. Entrepreneurs evaluate the knowledge competence to be important to their success	Knowledge					
	Proposition 2b. Entrepreneurs evaluate the skills sub theme of the competence framework to be important to their success	Marketing skills					
		Opportunity skills					
		Resource skills					
		Interpersonal skills					
		Learning skills					
		Strategic skills					
	Proposition 2c. Entrepreneurs evaluate the attitudes sub theme of the competence framework to be important to their success	Entrepreneurial passion					
		Self-efficacy					
		Pro-activeness					
		Tolerance to uncertainty					
		Perseverance					
		Innovativeness					
	Proposition 2d. There is a high level of correlation between what the competencies they evaluate as important and their self assessment						
RQ3. To what extent does the business environment influence business success of IT startups in Norway	Proposition 3a. Entrepreneurs, the business environment as having a significant impact to their success						
	Proposition 3b. Entrepreneurs evaluate the impact of the business environment as being overall positive						
RQ4. To what extent do education, entrepreneurial	Proposition 4a. Entrepreneurs assess that	Education level					

Research question	Proposition		C1	C2	C3	C4	C5
training before and after start-up, and work experiences influence the development of entrepreneurial competencies?	education, training before and after start up, and prior work experiences influence their success	Entrepreneurial training before starting the business					
		Entrepreneurial training after starting the business					
		Previous work experience					
		Previous entrepreneurial experience					
	Proposition 4b. Entrepreneurs assess that their educational and work experiences before starting the business impact their performance as an entrepreneur						
RQ5. What is the level of dynamic capabilities of the IT startups in Norway?	Proposition 5a. Entrepreneurs of the IT startups in Norway believe that their companies have regenerative dynamic capabilities						
	Proposition 5b. Entrepreneurs of the IT startups in Norway believe that their companies have renewing dynamic capabilities						
	Proposition 5c. Entrepreneur's resources are positively related to start-up's dynamic capabilities						
	Proposition 5d. Dynamic capabilities are related to company performance						
RQ6. Are the IT startups in Norway characterized by a lean startup type?	Proposition 6a. IT startups in Norway are of a lean startup type						
	Proposition 6b. The lean startup type is related to performance						

Table 12. Table color code

Case supports the Proposition	Case partly supports the Proposition	Case doesn't support the Proposition	Data not available
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My first research question “**RQ1. How do IT startups in Norway assess their performance?**” led to three propositions, all of which are supported by the results of my cross-case analysis.

**Proposition 1a; states that Entrepreneurs use objective performance criteria such as sales and profit when setting their objectives and assessing the performance of their companies.** This has been the case in all four case studies where I had data available.

Profitability and sales are the first two criteria used by all companies, with some more focused on profit and others on sales.

**Proposition 2a; claims that Entrepreneurs use external performance criteria such as customer satisfaction, other companies in their field and stakeholder opinions.** This has been supported by evidence from all cases, and it seems that IT start-ups in Norway are paying close attention to their competition and value highly customer satisfaction.

**Proposition 1c; claims that there is a correlation between the personal assessment of performance and company financial criteria** and the evidence from my case studies support this claim. Perhaps because of their reliance on objective criteria and external feedback, IT start-up entrepreneurs tend to rate their satisfaction with the company's performance quite closely to that of the financial indicators.

The second research question we put forward was **"RQ2. What are the competencies perceived to be most important by entrepreneurs in It startups in Norway?"** This has spawned four propositions, which are at least partly supported by my cross-case analysis.

**Proposition 2a; Entrepreneurs evaluate the knowledge competence to be important to their success,** is supported by all cases, with all interviewees rating knowledge competencies as being important for an entrepreneur.

**Proposition 2b; Entrepreneurs evaluate the skills sub theme of the competence framework to be important to their success,** has received mixed ratings but has been at least partly supported in each case. As this is an exploratory approach, I decided to detail the analysis on each individual skill, and as it can be observed in Table 9, consensus between cases is relatively low for Opportunity and Resource skills, with some entrepreneurs rating them as important and others less so. However in the case of Marketing, Interpersonal, Strategic and Learning skills they are rated as necessary in most cases.

This led me to conclude that in the case of the It start-ups in Norway a great emphasis is being placed by the entrepreneurs on a distinct sub-set of skills, with Strategic and Learning skills as being rated the highest. This is perhaps a result of the perception of certain skills as more acquirable than others. As it will be seen further, most IT start-ups value learning highly, and this is to be expected in a highly competitive knowledge intensive field.

At the same time, the entrepreneurs in question complain about lack of proper marketing: “We haven't yet decided exactly where to position ourselves. Two questions we often use to answer this: «what do we want to be and for who?» , «who do we want to compete with?» these are still not clearly decided and evolves over time.” and “In PR we didn't have any experience and hiring a professional was extremely expensive; the first consultant didn't help us a lot and we found out that he was using more time than us to figure out things and we were in a continuous meeting. After that experience, we hired consultants just to show us how to things not to do things for us. What we were learning during those meetings afterwards we were putting in practice in the office” . Taking into consideration these complains it is evident why there is a high emphasis they place on marketing skills.

**Proposition 2c; Entrepreneurs evaluate the attitudes sub theme of the competence framework to be important to their success,** has been supported by the results of the cross-case study. It would seem that entrepreneurs in the IT start-ups in Norway feel that positive attitudes are necessary in order to be able to perform in this field.

**Proposition 2d;** claims that **there is a high level of correlation between what the competencies they evaluate as important and their self-assessment.** This has received support from the results of all cases, with all entrepreneurs showing a distinct tendency of rating themselves above the levels they set as “necessary for an entrepreneur” of all competencies. While I cannot draw a causal conclusion, a possible explanation would be that entrepreneurs tend to use themselves as a ruler, and set what they think is general requirement for the entrepreneurial field to what they see in themselves. If this were the case then, my results would be contaminated by this perceptual error. This claim is however contradicted by the fact that entrepreneurs believe marketing skills are important while they themselves self-rate low on them.

My third research, question has been “**RQ3. To what extent does the business environment influence business success of IT startups in Norway?**” This question has led to two different propositions: **Proposition 6a; IT startups in Norway are of a lean startup type,** and **Proposition 6b, Entrepreneurs evaluate the impact of the business environment as being overall positive.** Both of these propositions are supported. The business environment is considered generally as a positive factor of business success; however, the entrepreneurs are still faced with a number of negative effects, even if they are outweighed by the positive ones.

The forth research question, **“RQ4. To what extent do education, entrepreneurial training before and after start-up, and work experiences influence the development of entrepreneurial competencies?”** has also given a number of two propositions.

Firstly, **Proposition 4a;** claiming that **Entrepreneurs asses that education, training before and after start up, and prior work experiences influence their success.** This has been only partly supported by the case evidence, and I decided that further investigation was required, so I resorted to investigating each component in itself. Education and previous experience has been generally regarded as an important, and sometimes vital, factor of entrepreneurial success. However entrepreneurial training before starting a business had mixed responses, being considered less important. Entrepreneurial training after starting the business is supported by four out of my five case studies.

This is an interesting result, as it shows that for the IT entrepreneurs in Norway education and entrepreneurial training are distinct factors and have different weights when it comes to crediting them for their success. This could be an indicator of the fact that either entrepreneurial training is not being pursued, or it is ineffective. An idea of “learning by doing” seems to be present in the IT start-ups in Norway, with entrepreneurs having opinions such as “After starting a business, you as entrepreneur grow along with development of the business” and “the network around me helped me a lot, I think most of the education and mentoring regarding entrepreneurship I got from the people around me”. However there is also a strong emphasis on previous formal education, entrepreneurs claiming that “With an academic background, knowing various methodologies have been helpful to structure things” and “I think my former education helped us a lot in becoming visible and my education in economics helped us to stay in balance with expenses”.

**Proposition 4b; Entrepreneurs asses that their educational and work experiences before starting the business impact their performance as an entrepreneur.** This has been supported by my case studies, with most of the entrepreneurs giving a lot of credit to the positive impact of their education and work/entrepreneurial experiences and also the negative impact of the lack of certain experiences. For instance in one case lack of previous entrepreneurial experience has led to an entrepreneur to be considered a good leader with a strong vision, but that cannot optimally organize and make the business run as efficiently as it could have been done.

My fifth research question was “**RQ5. What is the level of dynamic capabilities of the IT startups in Norway?**” . This led me to formulate four propositions, which have received different amounts of support from our case studies.

**Proposition 5a; Entrepreneurs of the IT startups in Norway believe that their companies have regenerative dynamic capabilities** has been strongly supported, with four cases providing evidence for it, and one case partly supporting it.

**Proposition 5b; Entrepreneurs of the IT startups in Norway believe that their companies have renewing dynamic capabilities** has been partly supported by my studies, and so I decided to further look into this aspect. Out of the investigated renewing dynamic capabilities, sensing and seizing has received very little support, Knowledge creation partial support and Knowledge Integration full support.

I can therefore conclude that Entrepreneurs of the IT startups in Norway believe that their companies have a high level of Knowledge Creation and Integration.

**Proposition 5c; Entrepreneur's resources are positively related to start-up's dynamic capabilities**, has received support from all cases. Entrepreneurs that rated themselves as having higher levels of resources tended to rate their companies dynamic capabilities as high, while those who had moderate levels of recourse tended certain dynamic capabilities as low.

**Proposition 5d; Dynamic capabilities are related to company performance**, has been supported. In two distinct cases, dynamic capabilities were rated high and performance below expectations, with financial indicators also mixed or negative. While this could reflect a lack of connection between the two concepts, it is also possible that entrepreneurs’ ratings are subjective. Due to my reliance on self-reports I cannot be certain that companies indeed have the dynamic capabilities their entrepreneurs think they do.

My sixth research, question has been “**RQ6. IT startups in Norway are of a lean startup type?**” This question has led to two different propositions: **Proposition 6a; IT startups in Norway are of a lean startup type**, has received support from four cases from five. Entrepreneurs rated themselves as having a firm that follows the lean startup only one case cannot be not identify itself of a lean startup method because it didn’t had any accurate method to test the potential customer reaction and the demand for new products.

**Proposition 6b, The lean startup type is related to performance.** This has been only partly supported by the case evidence, and when I further investigated the financial data from Proff.no with the company's internal information. I came to an interesting conclusion; IT entrepreneurs in Norway are not applying the lean startup methodologies correctly. This could be an indicator of the fact that either lean startup training is not being pursued as entrepreneurial training, or it is ineffective.

In conclusion entrepreneurs of IT startups in Norway do indeed believe their companies have many dynamic capabilities and are of the lean type. I found that there is some evidence for the hypothesis that in their case there is a relation between dynamic capabilities and performance. Due to the nature of our study however I cannot draw a conclusion on the nature of this relationship, as it is possible that it is only present for some companies or, due to the self-report approach, it could mean that not all entrepreneurs properly assess their companies dynamic capabilities.



## 6 Discussions

My study has yielded some interesting conclusions. Based on the recommendations in Yin (2012) I selected my cases with enough similarities so that I could perform comparisons, but with enough variance so as to get a feeling of the relation between variables. For instance I choose all startups from the IT sector that have begun operating in a certain time frame and geographical location. However they vary in performance, so as I can see if this would be an influencing factor.

The first issue I looked at was company performance. Since it is a critical aspect from many points of view, I wanted to see how entrepreneurs asses their companies.

Based on the subjectivist theories I expected that entrepreneurs might rely more on internal criteria and that their assessment of company performance will be biased positively. I started from the general observation, based on the current literature, that while a good entrepreneur will manage to find good projects and opportunities, a bad entrepreneur might invest too much time and resources into a non-performing project. What I discovered based on my case studies was that entrepreneurs tend to be knowledgeable about their companies' performance, and use a lot of external criteria to asses it. Most entrepreneurs rely not only on financial indicators but on other types of data such as customer satisfaction, stakeholder opinions and their position in relation to their competition.

This is a good indicator that in the case of the IT startup entrepreneurs tend to be less subjective when it comes to company performance than it might be expected.

The competencies of the entrepreneur are an important issue for the current paper. While their measurement is difficult, especially during interviews, due to subjective views and biases, I believe that some important ideas can be extracted nevertheless.

Firstly, the most important competencies are **Knowledge** and **Learning skills**. I expected this to be the case, as the IT domain is one with a strong emphasis on knowledge and quite dynamic, requiring constant learning to be able to remain up to date with the latest trend and technologies.

A surprising result was the low emphasis on **Opportunity** and **Resource skills**. According to the current entrepreneurial theories, the ability to notice opportunities and gather resources

should be critical to an entrepreneur, however in the case of the IT startups investigated this has only sometimes been seen as the case, with one company in particular rating them as not important. Two of the companies that see these competencies as less important also have mixed or low financial performances so there might be a connection between the two.

In addition, interpersonal skills were not generally considered to be vital. This is somewhat intriguing, as one would expect that entrepreneurs need to have a good set of social skills in order to be able to attract capital (human and financial alike) however in the case of the IT startup in Norway these skills might not be as vital as I initially thought.

Marketing was a special issue as well, as most entrepreneurs rated it as important or somewhat important, however they tended to rate themselves below this level. This reinforces my opinion that while technology and learning are pushing IT startups in Norway forward, lack of certain competencies, such as marketing in this case, is preventing them from reaching their full potential.

Business environment plays, as expected, an important roles in the business success and business practices of IT startups. While this is not at all surprising, we found it interesting that for most companies the environment was seen as more positive than negative, and for the single case where this was not true, the entrepreneur felt that there was a balance between the two types of factors. Under these circumstances, assuming that the entrepreneurs' assessments are correct, it would seem that currently Norway provides a good, positive and impactful business environment for IT startups.

Very few entrepreneurs start business without previous training or experience. This being said, I was interested in seeing just how important these factors are being seen by those that currently running a business. Education and previous entrepreneurial experience are generally seen as vital for success. However, the surprising result is that entrepreneurial training before starting the business is not seen as vital. Actually, the opposite is true, as it considered less important or only sometimes important. This is a worrying aspect, as it shows one out of two things. Either training is not seen as important in itself, which could lead to an overestimation of own abilities and eventually bankruptcy that could otherwise had been avoided. On the other hand, training is seen as important in theory, however the entrepreneurs' experiences with the training have been negative, and the feel it is inefficient. Regardless of the case, I think more emphasis should be placed on this aspect, as lack of training could play a major

cause in the low performance of some companies. Another evidence for this idea is that marketing skills are rated as lacking by most entrepreneurs, when in fact they should play a vital part in promoting ones ideas.

Dynamic capabilities are the center point of my thesis, and I investigated it through rating scales and opened questions to get a fuller image. I used several dimension of dynamic capabilities so I can get a more detailed look at their level in the IT startups.

Firstly regenerative capabilities are the best developed (according to the ratings done by the entrepreneurs). Reconfiguration is generally rated as being of average level and having one of the lowest scores. It seems that in the IT company's studied, the entrepreneurs cannot transform existing knowledge in order to properly exploit opportunities better than the average company'.

Leveraging was rated high by all entrepreneurs, all them considering their companies as capable of expanding to new markets by using their knowledge base.

Learning was also rated as generally high, or very high. This is to be expected for IT companies, as their field is in constant change and learning/adaptation is a requirement for survival on the market.

Renewing capabilities are generally rated lower than regenerative ones. Sensing and seizing is the most fluctuating capability between our cases, with some rating it low and others very high. Interesting enough there seems to be little correlation between this and company performance. Market positioning is an issue for the IT startup in Norway. Many entrepreneurs think they lack marketing skills (as discussed earlier) and thus is it only natural that positioning would be an issue for them. Knowledge creation and Knowledge integration are seen in general as average and high, respectively, which is to be expected in a knowledge-intensive environment like the IT sector.

It would seem then that the strong points of the IT startup when it comes to its dynamic capabilities are Leveraging, Learning and Knowledge Integration. These strong points however might be compromised in some cases by low levels of Sensing and Seizing and thus there should be an emphasis on developing these kinds of capabilities, including marketing.

The last research objective of my thesis has been concerned with the lean startup type. Results confirmed that the entrepreneurs think of their companies as lean startups. However if this is truly the case, then a lack of relation between this and company performance would seem to conflict current beliefs. I think it is far more likely that sometimes entrepreneurs tend to overestimate their companies capabilities and qualities and might have less in common with the lean startup type than they think.

### **Recommendations for Further Research**

My study has been limited by several factors, which could and should be addressed in future research projects. The greatest limiting factor has been the reliance on self-reports. While I used several sources of information, a great deal of the data has been made vulnerable to subjective interpretation because of this.

A few interesting conclusions came out from my study, and further research is needed to replicate and generalize them. I recommend that future research projects double the interview process with testing of capabilities, perhaps through practical means, in order to properly evaluate and eliminate the subjective bias. Further research is also needed to establish a causal link between dynamic capabilities and performance.

The implications of my study for practitioners, namely the entrepreneurs and those with entrepreneurial intent in the IT sector are twofold. Firstly experience and personal capabilities play an important role in the company success and so personal development should be the aim of any entrepreneur. Secondly company capabilities should also be more carefully addressed. Entrepreneurs and managers should be careful when assessing company performance and capabilities, as it is very likely that some of the anomalous results I uncovered could be the result of subjectivism, since some entrepreneurs think that their companies have dynamic capabilities however their performance would suggest otherwise.

Companies and practitioners should learn from my study that paying attention to their dynamic capabilities and the entrepreneurs own experiences and limits has an impact on their bottom line and long term success.

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# 8 Apendix

## 8.1 Interviewee Summaries

### 8.1.1 Company 1

#### 1. Enterprise performance

- How does your enterprise's performance compare to your initial objectives?

Answer:

*"A little under my expectations"*

*"Just slightly below objectives, but they were never set to be met. The objectives were set to push the company to reach the highest performance possible in the given time"*

- How would you compare its performance to that of similar enterprises?

Answer:

*"Average plus"*

*"Our benchmarking clearly shows that the performance is well above average"*

- What do your stakeholders think about your company's performance?

Answer:

*"As long as the turnover gives money, they are satisfied"*

*"It's a good performance, but it can do more. Every year the performance needs to be a little bit better than the previous year, which is normal."*

- What are the criteria based on which you evaluate your enterprise's performance?

Answer:

*"Almost every time MONEY, bus as often, also solutions and customer satisfaction, followed by employees satisfaction"*

*"Besides the obvious ROI and Profit, the performance is also evaluated based on employee and customer retention. Where employee turnover is one of the greatest concerns for any company."*

#### 2. Competencies

- Which of the following competencies do you think are the most important for an entrepreneur?
- How would you rate yourself on them?

Competency	Importance			Self-rating		
	Low	Average	High	Low	Average	High
Knowledge			X			X
Marketing skills			X			X
Opportunity skills		X			X	
Resource skills			X		X	
Interpersonal skills		X			X	
Learning skills			X			X
Strategic skills			X			X
Entrepreneurial passion		X			X	
Self-efficacy			X			X
Pro-activeness		X			X	
Tolerance to uncertainty			X			X
Perseverance		X			X	
Innovativeness		X			X	

### 3. Business environment:

- How would you rate the current business environment's impact on your business?
  - 1) Extremely positive
  - 2) ***Somewhat positive***
  - 3) Neither positive, nor negative
  - 4) Somewhat negative
  - 5) Extremely negative

- In what way does the business environment influence your business's performance?

Answer:

*"Somewhat positive. The technical and administrative environment is very important"*

*"The business environment has always had a positive influence on our business performance as it is pushing us to continuously learn, develop more skills and become better."*

- What are the factors of the business environment that have a positive impact on your business? In addition, what are those that have a negative impact?

Answer:

*“High level of both theoretical and practical knowledge. A good social network for every employee. On the negative side is, lack of interesting tasks, to little commitment from the management, and the possibilities of the locations of the company.”*

*“Continuous increase of options and solutions with an unprecedented flexibility. Even though the aim is to make everything simpler and easier, it actually feels like everything becomes more complicated and more complex.”*

#### 4. Previous experience:

- How important do you consider the following issues to be to your success as an entrepreneur?

Factor	Vital	Important	Sometimes important	Less important	Irrelevant
Education level	X				
Entrepreneurial training before starting the business				X	
Entrepreneurial training after starting the business		X			
Previous work experience	X				
Previous entrepreneurial experience			X		

- How did your educational and work experiences before starting your business impact your performance as an entrepreneur?

Answer:

*“Both factors are important, but the one does not come without the other. After starting business, you develop entrepreneurship along with development of the business. Entrepreneurship requires both money and time, both factors here could be a challenges starting a new business.”*

*“I believe that both education and work experience are very important for any entrepreneur, where work experience is more important because it is hands-on practical education. Aside from this two factors, attitude, motivation and personal development, in this order, are by far a must for any successful entrepreneur.”*

#### 5. Dynamic capabilities

- How does your company exploit its knowledge base? How does it exploit its existing resources to expand to new markets? How does the organizational learning process work in your organization?

Answer:

*“The directions are often controlled by the company’s customers; you also develop according to your customer. Very often the economy often decides the direction, and the position the customer wants to go, also decides.”*

*“The company is constantly learning new skills and developing better strategies by analyzing the market demands, using its knowledge, market trends and customer behavior. The Mastermind strategy has always been proven to be successful for the company.”*

How does your company position itself? How does your company create and absorb new knowledge? How does your company acquire new knowledge?

Answer:

*“We like to think that we are in the top area of knowledge, but the fact is that we are in the Top area within our field. We are very responsive for new knowledge and participate in training courses as often as possible, and practical. This is also an economical issue.”*

*“We believe that the key to a successful positioning is to focus on the client. If you speak to the client needs, you will get where you want to be. Knowledge comes from experience and experience comes from taking the wrong decisions, therefore we are always learning.*

- How would you rate your company's capacity to...

	Very low	Low	Average for our field	High	Very high
exploit its knowledge base			X		
exploit its existing resources to expand to new markets				X	
learn as an organization				X	
position itself on the market			X		
create and absorb new knowledge			X		
acquire new knowledge				X	

## 6. Lean startup

- How do you test the potential customers' reaction and demand for your new products?

Answer:

*“We do not have an accurate way of doing so, but listening to the technical personal, often gives us an opportunity to suggest new product, or renewal of existing products.”*

*“We are usually analyzing the client's trends and behavior, combined with various surveys.*

- How much interaction does your potential customers have with your new products before they are officially launched?

Answer:

*“A few weeks.”*

*“This depends on various factors, including what is the type of the product. The average interaction time is 12 weeks.”*



## 8.1.2 Company 2

### 1. Enterprise performance

- How does your enterprise's performance compare to your initial objectives?

Answer:

*"Mostly it follows the initial plan but also adapts accordingly to market events. The positive feedback from industry gives us some more optimism that we're on the right track."*

*"As we have constantly accomplished most of our initial objectives, some were improved and new objectives have been developed."*

- How would you compare its performance to that of similar enterprises?

Answer:

*"It's steady progress for Company 2. Similar enterprises might have more resources on development and integration."*

*"Its performance is sustained by long hours of hard work, which makes it a very competitive company compared to other similar enterprises."*

- What do your stakeholders think about your company's performance?

Answer:

*"Company 2 don't have yet any other investor than the founder. We're still in the seed 2 phase, ready to market."*

*"The company's founder is the only investor, whose performance is directly reflected on the company performance, and he believes more than anyone else in the company's future."*

- What are the criteria based on which you evaluate your enterprise's performance?

Answer:

*"Flexibility and ease of integration of our solution based on new challenges."*

*"Meeting deadlines and accomplishing objectives. Whenever expectations are exceeded, we consider that the company's performance is a home-run."*

### 2. Competencies

- Which of the following competencies do you think are the most important for an entrepreneur?
- How would you rate yourself on them?

Competency	Importance			Self-rating		
	Low	Average	High	Low	Average	High
Knowledge			x		x	
Marketing skills			x			x
Opportunity		x				x

skills						
Resource skills			X		X	
Interpersonal skills		X			X	
Learning skills			X		X	
Strategic skills			X		X	
Entrepreneurial passion		X				X
Self-efficacy		X			X	
Pro-activeness		X			X	
Tolerance to uncertainty		X				X
Perseverance			X		X	
Innovativeness		X				X

### 3. Business environment:

- How would you rate the current business environment's impact on your business?

- 1) Extremely positive
- 2) **Somewhat positive**
- 3) Neither positive, nor negative
- 4) Somewhat negative
- 5) Extremely negative

- In what way does the business environment influence your business's performance?

Answer:

*"In traditional business is all about geographical position. In the digital world is much easier to market and offer your services. Financing your business can have a negative impact on your enterprise as long you're not have some influent people in your board or you're not selected in a certain accelerator."*

*"The business environment makes it a very competitive market, which pushes our company to develop even better and more competitive products. An evolving business environment also helps the end user to receive a better and more performant product."*

- What are the factors of the business environment that have a positive impact on your business? In addition, what are those that have a negative impact?

Answer:

*"Positive: Cloud based approach that can quickly scale without much effort (technical). Internet of Things is new market with amazing growth potential.*

*Negative: Bigger businesses can "*

*“Driving our business to develop better products and offering more flexible options to do it, is a very positive aspect for our company.*

*It has some disadvantages as well, specifically when we are competing with companies that have access to more resources both financially and intellectually.”*

#### **4. Previous experience:**

- How important do you consider the following issues to be to your success as an entrepreneur?

Factor	Vital	Important	Sometimes important	Less important	Irrelevant
Education level		x			
Entrepreneurial training before starting the business			x		
Entrepreneurial training after starting the business	x				
Previous work experience		x			
Previous entrepreneurial experience	x				

- How did your educational and work experiences before starting your business impact your performance as an entrepreneur?

Answer:

*“Yes, inevitably. Our core product was shaped based on previous real work issues and projected to solve similar problems to other future customers.”*

*“The education and work experience gained prior to entrepreneurship was what got us where we are today. Everything we have learned helped us develop innovative ideas and make high demand products.”*

#### **5. Dynamic capabilities**

- How does your company exploit its knowledge base? How does it exploit its existing resources to expand to new markets? How does the organizational learning process work in your organization?

Answer:

*“Company 2 is targeting the new created enterprise online markets such as Office Store, IBM Marketplace. We like experiment new things and improve based on feedback. “*

*“We are always looking to use our resources and knowledge for expanding to new markets and reduce the risk of being dependable of one market.”*

- How does your company position itself? How does your company create and absorb new knowledge? How does your company acquire new knowledge?

Answer:

*“Various events, technical presentations and continuous learning.”*

*“A global financial crisis is actually helping us prosper, because obviously the old models are not working anymore so they need to be reinvented or redesigned. As long as there are questions unanswered and the market place keeps evolving, which is inevitable, we will continue to prosper and develop.”*

- How would you rate your company's capacity to...

	Very low	Low	Average for our field	High	Very high
exploit its knowledge base			x		
exploit its existing resources to expand to new markets				x	
learn as an organization					x
position itself on the market		x			
create and absorb new knowledge			x		
acquire new knowledge				x	

## 6. Lean startup

- How do you test the potential customers' reaction and demand for your new products?

Answer:

*“Company 2 is active in discussion groups and have an open attitude regarding new features or product improvements.”*

*“By offering to our clients and potential clients the opportunity to try the product free for a limited time. To find out if a product has demand, we are often pitching ideas on social media and find out how many would be interested in learning more and how many would find that product useable. Of course, we are not giving out the secret ingredient, but just a general idea.”*

- How much interaction do your potential customers have with your new products before they are officially launched?

Answer:

*“They actually can live test, follow the progress and improve it as it is built.”*

*“Usually, we are offering a test drive of our product to a limited number of people before the official launching and ask for feedback, so we can improve and adjust if necessary.”*

### 8.1.3 Company 3

#### 1. Enterprise performance

- How does your enterprise's performance compare to your initial objectives?

Answer:

*"Somehow, OK to be modest, we have over 700.000 downloads that is a lot for Norway, our products are stories and games for kids, we started from nothing we just had a few ideas we didn't think that it is going to be easy we have adapted to the market."*

*"Our initial objective was to generate an income that will allow us to expand on multiple markets. Today, we have a good presence on 12 different markets."*

- How would you compare its performance to that of similar enterprises?

Answer:

*"Medium since we are just a young company and we don't have enough experience and capital."*

*"If you are referring to similar companies in the same industry that is about the same size as ours, we are performing pretty well. Only larger companies with access to more resources are probably performing better."*

- What do your stakeholders think about your company's performance?

Answer:

*"They are towards happy if before we didn't have money for salaries this year we having money for dividends if we are not hiring somebody in the meanwhile."*

*"Investors are satisfied with the results, but like any investors they are always pushing for more."*

- What are the criteria based on which you evaluate your enterprise's performance?

Answer:

*"Number of downloads of our products compared to the international market. The return from paid games."*

*"We go by subscriptions, product installations and the period of time a client keeps the product active and doesn't uninstall it. Then we run a benchmarking for similar products."*

#### 2. Competencies

- Which of the following competencies do you think are the most important for an entrepreneur?
- How would you rate yourself on them?

Competency	Importance			Self-rating		
	Low	Average	High	Low	Average	High

Knowledge			x		x	
Marketing skills			x		x	
Opportunity skills		x				x
Resource skills			x		x	
Interpersonal skills		x				x
Learning skills			x			x
Strategic skills			x			x
Entrepreneurial passion			x			x
Self-efficacy			x			x
Pro-activeness			x			x
Tolerance to uncertainty		x				x
Perseverance			x			x
Innovativeness			x			x

### 3. Business environment:

- How would you rate the current business environment's impact on your business?

- 1) Extremely positive
- 2) Somewhat positive
- 3) Neither positive, nor negative**
- 4) Somewhat negative
- 5) Extremely negative

- In what way does the business environment influence your business's performance?

Answer:

*"Norway does not have an entrepreneurship culture I think our generation is shaping it.*

*When we started all the founding were going towards the oil industry financing the business was a bit tricky."*

*"The business environment in Norway was not one of the best, now it is different with the new government."*

*"Given the fact that entrepreneurship is still in the forming stage, we, the entrepreneurs, have the flexibility of developing and adjusting it accordingly to our business needs and goals."*

- What are the factors of the business environment that have a positive impact on your business? In addition, what are those that have a negative impact?

Answer:

*"A year ago, we launched a game based on Norwegian fiction. The game was very*

*successfully in Norway but not abroad. The game was extremely criticized in USA. We have used that momentum to create a bus to appear in Norwegian media. In the early stages any publicity is important. We managed to turn that article from US in our favor and get noticed.”*

*“Every business is striving to come up with innovative ideas to drive the future of the Norwegian consumer by making every product easier to use and more accessible. This is a very inspiring and motivating environment, but a very competitive one as well.”*

#### 4. Previous experience:

- How important do you consider the following issues to be to your success as an entrepreneur?

Factor	Vital	Important	Sometimes important	Less important	Irrelevant
Education level	x				
Entrepreneurial training before starting the business		x			
Entrepreneurial training after starting the business	x				
Previous work experience		x			
Previous entrepreneurial experience	x				

- How did your educational and work experiences before starting your business impact your performance as an entrepreneur?

Answer:

*“The network around me help me a lot, I think most of the education and mentoring regarding entrepreneurship I got it from the people around me. A course in entrepreneurship during the university intrigued my interest in starting a business for myself. I think my former education journalism helps us a lot in becoming visible and my education in economics helped us to stay in balance with expenses.”*

*“Proper education is a vital factor for any entrepreneur in order to be successful. Among many other reasons, gained profit can be easily wasted without proper education. While education is the driving factor for any entrepreneur, experience serves as the GPS for what to do and what not to do in business.”*

#### 5. Dynamic capabilities

- How does your company exploit its knowledge base? How does it exploit its existing resources to expand to new markets? How does the organizational learning process work in your organization?

Answer:

*“We knew that we want to make apps for kids, but we did not know how, I think we learn a lot in a couple of months after the incident from USA.*

*We are learning a lot, we did not stop learning. Maybe we are not the best start up in developing technology but we are trying to target better our customers and listen them.*

*In PR we didn't have any experience and hiring a professional was extremely expensive, the first consultant didn't helped us a lot and we found out that he was using more time that us to figure out things and we were in a continues meeting.*

*After that experience we hired a consultants just to show us how to things not to do things for us. What we were learning during those meetings afterword's we were putting in practice in the office.”*

*“As everyone knows that the highest quality and profit lays in developing a complete system for your business that provides all necessary resources from start to finish without outsourcing at all, we are discussing to develop an app that will help us, and any other business, to listen to its existing and potential clientele better in order to deliver and exceed expectations every single time. Continuously learning and reinvesting in developing and improving the most efficient areas of our business will always have priority.”*

- How does your company position itself? How does your company create and absorb new knowledge? How does your company acquire new knowledge?

Answer:

*“We are in a continuous learning process, programming we learn it in the university and online documentation and courses, but marketing and PR we rather learn it on the way. From a marketing prospective, we are acquiring a lot of knowledge from using tool from google to see who our customers are and what they prefer.”*

*“We want to be the company that launched the most innovative and helpful products which made people's life easier and more enjoyable. We are constantly learning from experience and industry new ways of doing things better. It will always be a learning process, and the point is not to “arrive”, as we will never “arrive” and become a know-it-all company, it is to be able to always focus 10% on the problem and 90% on the solution.”*

- How would you rate yours company's capacity to...

	Very low	Low	Average for our field	High	Very high
exploit its knowledge base				x	
exploit its existing resources to expand to new markets				x	
learn as an organization					x
position itself on the market				x	
create and absorb new knowledge			x		
acquire new knowledge				x	



## 6. Lean startup

- How do you test the potential customers' reaction and demand for your new products?

Answer:

*"We test our customers with beta programs locally, we are involving students a lot we use to be students and fresh minds are extremely vital.*

*After the experience from USA, we are more carefully. We are relying more on the international feedback since Norway is a small market."*

*"We promote trials for all our products to test potential client's reaction and their positive or negative feedback. We also analyze online traffic trends and industry benchmarking to determine market demands. Of course we improve, modify, adjust, add or take off elements based on feedback in order to offer the most relevant product."*

- How much interaction due your potential customers have with your new products before they are officially launched?

Answer:

*"A lot we are visiting schools all over Oslo and we trying to see how much the new game is being liked.*

*We are using more and more time testing our products if the game does not have a positive feedback we try to see why."*

*"As much as it is necessary in order to have the number one product on the market. Some interactions might be for 3 months, while other bigger projects can go up to 1 year of customer interaction before launch. It all depends on many factors, like: project size, feedback, functionality and demand."*

## 8.1.4 Company 4

### 1. Enterprise performance

- How does your enterprise's performance compare to your initial objectives?

Answer

*"As a startup that came from an idea, one always have a dream of success and how fast that may happen. Its all guess-work though, and for us the actual performance is going slower than our guesswork."*

*"As we are still in the first stage of the business, all we need to continue doing is be consistent and work hard in order to have a competitive performance and reach our business objectives."*

- How would you compare its performance to that of similar enterprises?

Answer

*“Depends where in the world that enterprise is. For example in U.S, a startup company usually shuts down if initial objectives are not met. In Norway, things are different. If I am to compare to Norwegian similar companies – as I don’t know their objectives its impossible to compare.”*

*“We like to believe that we are a unique company that will offer unique products in a one-of-a-kind way, and that currently there is no other company to compare to.”*

- What do your stakeholders think about your company’s performance?

Answer

*“no comment”*

*“We are all working hard to go right through the inevitable start-up challenges, so we can get up and running and have a satisfactory performance.”*

- What are the criteria based on which you evaluate your enterprise’s performance?

Answer

*“#1 growth of customers (as a result of experienced product value and satisfaction)*

*#2 growth in income (as a result of #1)”*

*“Increase of client satisfaction is more important than anything, followed by the increase of the client base and profit margin.”*

## 2. Competencies

- Which of the following competencies do you think are the most important for an entrepreneur?
- How would you rate yourself on them?

Competency	Importance			Self-rating		
	Low	Average	High	Low	Average	High
Knowledge			X			X
Marketing skills		X		X		
Opportunity skills		X			X	
Resource skills		X			X	
Interpersonal skills		X			X	
Learning skills			X		X	
Strategic skills		X			X	
Entrepreneurial passion			X			X
Self-efficacy			X			X

Pro-activeness			X			X
Tolerance to uncertainty			X		X	
Perseverance			x			x
Innovativeness		x			x	

### 3. Business environment:

- How would you rate the current business environment's impact on your business?
  - Extremely positive
  - Somewhat positive**
  - Neither positive, nor negative
  - Somewhat negative
  - Extremely negative
- In what way does the business environment influence your business's performance?

Answer

*"Increased motivation and problem-solving"*

*"It highlights what works and what doesn't work while supplying resources for new product ideas."*

- What are the factors of the business environment that have a positive impact on your business? In addition, what are those that have a negative impact?

Answer

*"Positive: All is aligned in achieving a defined goal, quick decisions, happy environment, work is fun"*

*Negative: emotional attached (at times), noise/disturbances, many simultaneously projects, stress"*

*"Source of inspiration and learning platform, which can offer some tight dead-lines with a high level of stress."*

### 4. Previous experience:

- How important do you consider the following issues to be to your success as an entrepreneur?

Factor	Vital	Important	Sometimes important	Less important	Irrelevant
Education level			x		
Entrepreneurial training before starting the business			x		
Entrepreneurial training after starting the business		x			

Previous work experience		x			
Previous entrepreneurial experience			x		

- How did your educational and work experiences before starting your business impact your performance as an entrepreneur?

Answer

*“With an academic background, knowing various methodologies have been helpful to structure things. A good foundation within your field of expertise makes you do better decisions.”*

*“Education is the foundation, while experience is the know-how that facilitates a lower stress level due to eliminating the guess work complemented by the ability of taking the right decisions at the right time.”*

## 5. Dynamic capabilities

- How does your company exploit its knowledge base? How does it exploit its existing resources to expand to new markets? How does the organizational learning process work in your organization?

Answer

*“Statistics and network. We measure customer satisfaction and a lot of other parameters, and build on that. And we use network within both internal-structure (employees, board of directors etc) and customer-base to get qualitative input/feedback.”*

*“Everything we learn from each product launch is used to improve the next project and its launching. As for the new markets, we are always expanding based on market demand.”*

- How does your company position itself? How does your company create and absorb new knowledge? How does your company acquire new knowledge?

Answer

*“Work in progress. We haven't yet decided exactly where to position ourselves. Two questions we often use to answer this: what do we want to be and for who?”*

*“Who do we want to compete with? - these are still not clearly decided and evolves over time.”*

*“We want to be the go-to company for the highest quality products in the industry at a very aggressive competitive price. New knowledge is always created and absorbed from own and other companies experiences.”*

- How would you rate your company's capacity to...

	Very low	Low	Average for our field	High	Very high
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exploit its knowledge base			x		
exploit its existing resources to expand to new markets				x	
learn as an organization			x		
position itself on the market		x			
create and absorb new knowledge					x
acquire new knowledge					x

## 6. Lean startup

- How do you test the potential customers' reaction and demand for your new products?

Answer

*"We ask them. Quantitative and qualitative analysis are core components on how we operate. We are in daily touch with our customers around the world."*

*"We obviously identify the level of demand before we start any project, then we measure the real-life demand level and market reaction by letting the market to test the product."*

- How much interaction due your potential customers have with your new products before they are officially launched?

Answer

*"We have several stages before launch to get a feeling on how it will be received, but are not afraid to put things out and test it in real production environment. Push fast; fail fast is a philosophy in software development that we have embedded in many of our releases."*

*"We never launch a product that encompasses the entire idea. We first launch a basic version that require a minimum interaction before launching, then we come up with an advanced version and use the feedback from the basic version to improve the advanced one. And we keep going with as many levels of the product as possible."*

## 8.1.5 Company 5

### 1. Enterprise performance

- How does your enterprise's performance compare to your initial objectives?

Answer:

*"As a member of the board of directors, the company's performance is a one of the objectives. This is because it influences myself over the longer term than other factors. In addition, the overall performance is dependent on several factors that often do not involve me."*

*“It doesn’t matter how much you plan, the outcome will never meet that plan, but the point is to come close, which it did. It’s a team work, and it takes time to get everyone to work together as one. But the most exciting part is that we give ourselves all that time as we have very innovative projects for the next 10 years.”*

- How would you compare its performance to that of similar enterprises?

Answer:

*“I think there is potential for a much higher performance. Compared to other similar enterprises, the company lacks good focus on efficiency and resource utilisation.”*

*“Satisfactory performance, but we haven’t hit the jackpot yet. Still working on that, but we are confident that we are getting closer every day.”*

- What do your stakeholders think about your company’s performance?

Answer:

*“In general the feeling is positive. The fact that a small company managed to survive through its first years is seen as a success. There are many other cases where similar businesses failed in the first 2 years.”*

*“We haven’t only managed to pass the winter, but we have also been able to generate profit, and that’s what stakeholders are all about.”*

- What are the criteria based on which you evaluate your enterprise’s performance?

Answer:

*“Profitability, bonuses, successful sales, interesting projects.”*

*“10 year plan and innovative products that are the missing links from anyone’s life, along with profit margin and business expenses.”*

## 2. Competencies

- Which of the following competencies do you think are the most important for an entrepreneur?
- How would you rate yourself on them?

Competency	Importance			Self-rating		
	Low	Average	High	Low	Average	High
Knowledge			X			X
Marketing skills		x			X	
Opportunity skills	X				X	
Resource skills	X			X		
Interpersonal			X			X

skills						
Learning skills			X			X
Strategic skills		X				X
Entrepreneurial passion			X			X
Self-efficacy		X			X	
Pro-activeness		X			X	
Tolerance to uncertainty		X			X	
Perseverance		X				X
Innovativeness			X		X	

### 3. Business environment:

- How would you rate the current business environment's impact on your business?
  - 1) Extremely positive
  - 2) **Somewhat positive**
  - 3) Neither positive, nor negative
  - 4) Somewhat negative
  - 5) Extremely negative
- In what way does the business environment influence your business's performance?

Answer:

*"In a moderate way. Being a small company, 1-2 projects/clients can influence positively the performance. The likelihood of having them is of course higher in good business environment."*

*"A positive business environment will always influence a business in a positive way, and is in part up to the businesses to maintain that environment."*

- What are the factors of the business environment that have a positive impact on your business? In addition, what are those that have a negative impact?

Answer:

*"The success/failure of sales effort is a significant factor. Selling process takes significant effort, time and costs. Once a certain number of hours is sold, the positive impact is significant, as the margins are relatively high."*

*Employee efficiency and miscommunication with clients can have often a negative impact. It can lead to double work, and waste of the most important commodity of this business: time."*

*"This industry has one of the highest profit-margin, which favours rapid growth. Therefore team leadership and coordination is one of the most important factor to maintain a high profit margin, while team and stress management is mandatory."*

#### 4. Previous experience:

- How important do you consider the following issues to be to your success as an entrepreneur?

Factor	Vital	Important	Sometimes important	Less important	Irrelevant
Education level			X		
Entrepreneurial training before starting the business			X		
Entrepreneurial training after starting the business				X	
Previous work experience		X			
Previous entrepreneurial experience		X			

- How did your educational and work experiences before starting your business impact your performance as an entrepreneur?

Answer:

*“The founder/CEO of the company did not have entrepreneurial experience. It can be seen often that he is a good leader with vision, but is lacking management skills that could better organize and make more efficient our business.”*

*“Team management, leadership skills and business development skills have been taught through education and experience, but there is always room for improvement.”*

#### 5. Dynamic capabilities

- How does your company exploit its knowledge base? How does it exploit its existing resources to expand to new markets? How does the organizational learning process work in your organization?

Answer:

*“The learning process is often very time consuming and slow. In general, the founder is the person who proactively trains/teaches the people in the company. Other people in the company teach more in a reactive style.*

*On a daily bases there is also constant exchange of information/news/updates that keep all of us connected to the market, which is a significant part of our everyday work.”*

*“Our company learning system starts from the top and works its way down, meaning the executives are teaching the VP’s, the VP’s are teaching the managers who teach the rest of the employees. Beside this great system, the company has developed an internal chat system which facilitates the interaction between employees without bothering nor interrupting the work, but keeping everyone updated.”*



- How does your company position itself? How does your company create and absorb new knowledge? How does your company acquire new knowledge?

Answer:

*“We position ourselves as a creator of knowledge, ideas, visionary and solutions for our clients. This is actually the way we brand ourselves to our clients. Part of the consulting business is to identify the problem for the client and come up with a solution that they had not seen.”*

*“We pride ourselves for providing the best in customer service, quality and speedy response. Of course, all this is taken in consideration during pricing. People are no longer chasing only the quality of the products, but also the ultimate in customer service.”*

- How would you rate your company's capacity to...

	Very low	Low	Average for our field	High	Very high
exploit its knowledge base			X		
exploit its existing resources to expand to new markets				X	
learn as an organization				X	
position itself on the market					X
create and absorb new knowledge				X	
acquire new knowledge				X	

## 6. Lean startup

- How do you test the potential customers' reaction and demand for your new products?

Answer:

*“We have constant dialogue with existing and potential clients. We find out what is their area of interest. Also we constantly brainstorm about new possible areas of interest/products in the industry that could be interesting, necessary.”*

*“The client constantly participates in every step of the process, and we always look for opportunities to upsell the customer if we identify an area of interest where the client is lacking.”*

- How much interaction do your potential customers have with your new products before they are officially launched?

Answer:

*“Our work is normally delivered for a client specifically, so in general we don't create the product if there is not a somewhat certain client who would be interested in the product. “*

*“Our clients are actually driving the development of the products as our products cater to clients certain needs. Therefore clients interact with new products from start to finish until the final product is obtained.”*

### **8.1.6 Business Consultant**

**Can you tell me a bit more about lean startup from your prospective as a business consultant for X company?**

Answer:

*“Lean Startup seems to be fashion word in Norwegian innovation circles these days. Entrepreneurs, as well as business developers and academics, are forming a congregation who seeks salvation in the method. Lean Startup are neither religion or hocus pocus...”*

**What is lean startup for you?**

Answer:

*“About Lean Startup is a method combines the principles of Lean Manufacturing, Agile Development and Action Research to ensure product-market fit through validated learning from iterative hypothesis-based experiments.”*

**What is really Lean Startup in Norway?**

Answer:

*“The starting point is that you have an idea. A thousand crowns question is whether is good or not. You write down how the idea works for those who deliver it, and for those who will buy it. So you acknowledge that what you have written is nothing more than assumptions. You know actually on your way how it actually works out in the market. In your team you made some assumption back and forth, nobody knows for sure how they are going to work. Perhaps you've asked some potential customers as well, but they really do not know either. We're talking frequently about ideas customers have neither seen, used or needed your idea In short, Lean Startup method to helps you to move from believing to knowing. Trial and error (and test again)*

*Looking away from the glossy packaging, contributes to the Lean Startup are really low. The method combines the tools based on a mindset that innovative firms have spent a long time, but something has to also be called the child. The most important thing in the method is learning through experimentation. Easy said, is to try out different aspects of your ideas into practice. In experiments strives involves the customers to do something, rather than just an opinion. People are saying and doing many strange things; it is much more valuable an action than words. The point is to do this as early as possible and in such a small scale as possible, before you go out hard in the market. That way you can confirm that you're on to something, before you use a lot of time and resources to create something that nobody wants.*

*This test and no errors you will make again and again on one hypothesis at a time at the end will get you confident in your case that you can go harder into the market with higher probability of success.*

*For the record, absolutely sure you will never be . New ideas are always involving some risk.*

*Most of the startups are fooled!*

*Lean Startup method is theoretically appealing simple. In practice, however, we are talking about good old fashioned hard work! To design and conduct good experiments is difficult and requires practice over time. For larger businesses challenges mindset and tools from Lean Startup numerous conventions, processes and guidelines.*

*There are no shortcuts, so just roll up your sleeves!*

*There is, unfortunately, not a Lean Startup guaranteed success. New ideas are always risky and most of them may not survive? The advantage of this method is that you can find out as early as possible so you do not waste time and money on ideas without potential.*

*It is not without reason that Lean Startup has received so much impetus. Lean Startup demystified involves some good principles for those who work with innovation”*

### **What is your advice to Norwegian It startups?**

**Answer:**

*“To try it as well!*

*With new ideas always follows uncertainty. Move from mere assumptions and beliefs against facts and knowledge by trying out ideas in practice as early as possible. Remember that action turns words into boots!*

*Get out of the office!*

*To see what customers actually do there are some of the most valuable insights you may provide. Create an experiment, sit back and watch what happens. It gives you real customer insight.*

*Invest a little and learn a lot!*

*With even simple experiments you can learn a whole lot! Although many of your assumptions will prove to be incorrect, this too is valuable! You have just learned what does not work! All learning provides an indication of the way forward.*

*Keep it simple!*

*Are you unsure if the idea is developed sufficiently enough to test on customers? It is supposed to be a little embarrassed prototype or product you want to try out. “*